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Question of Utilization of Natural Gas Has Become as Important as Its Production

A Big Market that Threatens to Pull Away—How It May Be Retained

By F. H. MUGG

Superintendent Gas Department, Muskogee Gas & Electric Company, Muskogee, Okla.

As approximately 80 per cent of any natural gas distributing company's output is used as fuel for boilers, the present high price of natural gas and decreasing price of oil and coal, will cause a large drop in the earnings of the gas company.

Although very little attention has been paid to the utilization of natural gas in the past, this is now as important as production.

The present price of natural gas is not high enough to make the domestic user carry the burden, and is too high in price to compete with oil and coal for boiler purposes in large power plants.

A Business that Threatens to Draw Away

The average plant of 300 or 400 hp. of boilers or more is usually equipped with oil burning apparatus and will naturally burn the cheapest fuel. Very little can be done to retain this business while the price of oil does not exceed $1 per bbl., but there are numerous smaller plants who are still burning gas, owing to the lack of oil burning equipment, and who are considering installing oil burners unless their present operating costs are lowered.

If the natural gas distributing company expects or wishes to retain this business it is up to them to see that these operating costs are lowered.

Means to Retain It

Take the average small plant from 50 to 150 hp. of boilers. To them a boiler is for one purpose only, and that is to make steam. As long as the boiler continues to do this it is doing its duty. The gas used for firing this boiler is looked at as so much stuff for making steam, and is not considered as so many dollars until the monthly bill is received. If the operating cost has increased the first thing blamed is the fuel, especially where the fuel happens to be gas. It seems to be human nature to kick to the gas company about a high bill, although the average person would not think of complaining to the coal dealer because he had used more coal than usual during the past winter, or to the grocer because this week's grocery bill was higher than that for the previous week.

This can be partly accounted for in this way: When using coal, there isn't one place out of a thousand knows exactly how much coal is used during any one week or month. They buy their coal by the car and dump it in one large pile, adding to and taking away as needed, but with gas most plants will read the meter hourly, and the ones who do not read it at least once every 24 hours are few and far between. The result is that any increase in fuel consumption is noticed at once, and instead of looking for the cause, the gas company is the recipient of a high bill complaint.

In such cases it has been customary to test the gas meter for accuracy, and if proven accurate the next step was to convince the customer that he had used the amount of fuel for which he was billed.

Causes of High Bill Complaints

Conditions are now such that the gas company must employ a competent engineer to investigate, advise and superintend changes in furnace construction, combustion, heat application and operating conditions. This is no small job and the man selected for such a position must not only be an engineer, but one with a pleasing personality and who is a good salesman. While this man is not selling boiler room accessories, he is selling good-will, which is the greatest asset any gas company can have, and one which is lacking in a great many cases.

While investigating high bill complaints the efficiency man will find the following conditions to be the main causes:

Inefficient burner equipment.

Leaky boiler settings.

Lack of knowledge on combustion.

Let us first consider the burner equipment used by many small plants. As natural gas has been very cheap in the past, first cost has been considered rather than the cost of operation, and has resulted in the installation of a great many home made burners which are very inefficient.

For work of this nature it is best to use burners of approximately 25 hp. each, and distributed evenly over the front of the boiler. Wherever possible these burners should be installed in the ash pit door and grate bars and bridge wall should be removed. It is not necessary to install a checker wall and contrary to general belief the building of secondary air ducts in the combustion chamber is a sad mistake, as it only admits excess air which has a cooling effect on the fire box, and does not help combustion as has been supposed. It is a good idea, however, to leave about 1/16th of an inch space around the nozzle of the burner, so as to admit enough air to keep the nozzle of the burner cool. The writer has been able to get as high as 11 per cent CO_2 without a trace of CO in boilers where no air was admitted other than that taken in through the mixers.

There is one thing, however, of which the customer should be warned, and that is, the installing of any new burner or device for increasing the efficiency of his plant, without first making a careful investigation. There is a great deal of con in the economy preached by many salesmen selling boiler room accessories, and it is up to the efficiency man to act as adviser in many cases of such nature.

Few Medium-Sized Plants Wherein a 25 Per Cent Saving Cannot Be Made

The writer was called to investigate a case where the fuel bill increased 60 per cent in one month. Upon investigation it was found that new gas burners had been installed on the recommendation of a certain party, and the result was a 60 per cent increase in the cost of operation. By making tests this was found to be due to poor combustion and we were unable to do any better with these burners. The consumer now wishes he had asked the advice of the gas company, as he is out not only the increase in the fuel bill, but the cost of the burners and the installation.

There are few medium sized plants where one cannot make a saving of 25 per cent if a careful study is made of the operating conditions. The writer was called to investigate a high bill complaint in a laundry where gas was used under an 80 hp. return tubular boiler. The boiler setting was found in very bad condition and the burners used, very inefficient. The manager was advised to repair the boiler setting and cover it with a good coat of plastic cement, and to install burners of different design. They immediately repaired the boiler setting and covered it as was suggested, and the result was such a large saving that the manager is now satisfied, although tests show there is still room for a 20 per cent saving due to inefficient burner equipment.

Upon investigating another high bill complaint at a dairy we found that a 15 hp. locomotive type boiler had been set up outside the building, and was being used for sterilizing and pasteurizing. This boiler was not insulated in any way, and the burner equipment used was very inefficient. These burners were installed in the fire door, and the door not bricked up, which naturally allowed free access to cold air. For sterilizing, a steam jet was used and was left open all the time the sterilizing was being done. There was fully 50 per cent of the time that this jet was simply blowing steam into the room. The exhaust steam from this plant was being turned into the air when it should have been used for heating the feed water. The manager was advised to insulate the boiler, install more efficient burners, also install a quick opening valve that could be operated by foot power for sterilizing cans, and as an injector was used on the feed water line, he was advised to use a large barrel for the feed water and to pipe the exhaust steam into this barrel. If these recommendations are carried out they will save at least 50 per cent of the fuel used.

When one sees conditions such as these they wonder how some men manage to keep out of bankruptcy.

The Boiler Setting First

When investigating high bill complaints in power plants the first thing to be considered is the boiler setting. Is it tight? If not, why not? If the boiler setting leaks like a sieve, how do you expect to operate efficiently?

How about the burners? Are they the proper burners for this installation and are they efficient? Are they properly installed and distributed over the front of the boiler?

How about the draft? It is surprising to see how little the average person considers this. They all know draft is necessary to burn fuel, but when it comes to knowing how much is required for certain loads and conditions their knowledge is sadly lacking. Install a draft gauge on each boiler and arrange the damper controls so they can be easily adjusted. When this is done we are in a position to find out what draft is best suited to their conditions or load, and make analysis of the flue gas to determine what kind of combustion they are getting.

A careful study of conditions will now show us just what adjustments are needed on the draft and burners, and if the boiler is clean and free from scale we will soon be able to generate steam economically.

There is no reason whatever for any plant not having a portable CO_2 set, draft gauges and stack thermometer as they can be purchased very reasonably, and without them the engineer or fireman is working in the dark. The average fireman or engineer looks upon a CO_2 set as a complicated and delicate piece of machinery that requires a college professor to operate. But such is not the case and anyone with good common sense can learn to operate one in a short time. The writer has found a number of places where the engineer had a CO_2 set but was not using it because a pipette was broken, or they had run out of caustic for filling the bottle, and where draft gauges were installed on each boiler but were not in use. There positively is no excuse for such neglect, but conditions such as these are what the efficiency engineer finds, and it remains for him to wake the sleepers up.

When taking a sample of flue gas for analysis be very careful where you take the sample from. This sample should be taken from the point where the gases leave the heating surface of the boiler. A sample taken from this point will show any air leakage that affects the steaming of the boiler.

If the boiler is a return tubular, you can remove the

top and handles from the clean-out door at the base of the britchin and insert the sampling tube to within about six inches of the tubes. You will then be in the center of the gas passage and the sample will not be affected by any air leakage around the boiler doors. If for any reason you are unable to do this and have to take your sample from the britchin be sure to do this and stop all leakage around the boiler door and the britchin. Also remember the stack damper and don't get your sampling tube into an air pocket.

If the boiler is a water tube of the B. & W. type insert your sampling tube through the top blow hole in the last pass. If it is a HEINIE the sampling tube can be inserted through one of the hollow stay bolts.

Take the Draft on the Fire Box

In connecting your draft gauge be sure and take your draft from the fire box and not from the chimney. It is the draft on your fire box that counts and not the draft at the base of the stack or the britchin. If you wish to get accurate results never take the draft from the base of the stack.

The draft gauge is the most important instrument of the lot, and the only guide which the fireman has. Most places will be found to be operating on too high a draft rather than too low.

Next insert your thermometer in the britchin, and the bulb should be in the center of the gas flow and as near as possible to the point where the gases leave the heating surface of the boiler. The temperature of the gas at this point should be about 100 deg. Fahr. above the temperature of the steam.

The writer was called to investigate a high bill complaint where three 125 hp. return tubulars and two 150 Heinies were in operation. These boilers were being run on an overload and required a draft of about four-tenths of an inch. Upon making a flue gas analysis we were unable to get over 8 per cent CO_2 on the return tubulars and 6 per cent on the Heinies. Now under ordinary conditions this would mean that a large amount of excess air was being admitted from some source, but upon investigation and after completing the test it was discovered that the boiler settings were tight and very little excess air was being admitted, although they were operating on a very high draft. The analysis showed the presence of considerable CO which should not ordinary be there with such a low CO_2 Upon completing our investigation we arrived at the conclusion that the burner capacity under the return tubulars was not sufficient to carry the load, and when forcing this excess amount of gas through these burners they were unable to get the proper amount of air through the mixers. In trying to do this they increased the draft to such an extent that the stack temperature was about 150 deg. Fahr. higher than it should be. This naturally meant the loss of considerable heat that should have been absorbed by the boiler.

The Heinie boilers were found to have the proper burner capacity, but the combustion chambers were too small. In order to force them these boilers were being run on an excessive draft and even then showed the presence of considerable CO.

These people were advised of the conditions existing and it was recommended that two more burners be installed under the return tubulars and that the Heinies be raised.

They said they had known for some time that the combustion chambers in the Heinies were too small but had neglected to raise them, but would do so at the first opportunity. They immediately installed two more burners under each of the return tubulars, and were able to carry the load on these boilers without the assistance of the Heinie. They were also able to cut the draft to about eighteen one-hundredths of an inch which lowered the stack temperature to normal, and a flue gas analysis showed 10½ per cent CO_2 with very little O_2 and no CO.

These examples are but few of the conditions found by the efficiency engineer, but if he uses good, common sense and sticks to it he will win out every time and become invaluable to the company by which he is employed.

High Prices for High Times

How shall we define a "normal price" to-day? Are these times normal? And prices, moreover, have no fixed relation to prosperity. What we call the cost of living has actually no real relation to prices. For while the present price level is high, the human effort that must be put forth to live, which is the actual "cost of living" is as low as it ever has been—far lower for us than ever in any one country in the history of the world—simply because in most cases a day's work will buy as much and sometimes more than before the war and because a given amount of labor will secure an amount of necessities and luxuries that men, say 25 years ago, never dreamed of possessing.

There is no doubt that salaried people and unorganized laborers have suffered from the fluctuating dollar and that speculators have made temporary large winnings, but, by and large, the cost of living in the sense of this country's productiveness, the yield of its natural resources, the accessibility of its supplies brought about by the vast network of distribution, is on an excellent basis.—*The Nation's Business for October.*

Gas from Coal Dust

According to a London patent by J. H. Corthesy and S. T. S. Castelli, two generating chambers are placed one above the other, and the coal or other fuel, in a finely divided condition is placed in the upper chamber which is only heated to a temperature sufficient to distil gas from the coal, which gas may be used for illuminating purposes. Gas for heating or power purposes may be further obtained by transferring the coal to the lower chamber and completing gasification. The fuel is kept in motion by means of jets of air in the lower chamber and jets of gas in the upper chamber. Steam may be introduced into the lower chamber. A grid arrangement is placed between the chambers in such a way that the fuel may pass from one to the other without the gases mixing. The walls of the chamber are furnished with baffles to keep the fuel particles in suspension.

Carbonization Committee Report Shows Distinct Trend of Gas Industry Towards By-Product Oven

Largest Percentage of All Carbonizing Capacity Installed Since 1916 Has Been of Coke Oven Installations—Feverish Activity Halted for Time by Decline in Prices of By-Products

The most important and noticeable development of the past few years is the fact that most of the extensions to carbonizing equipment have been coke ovens or adaptations thereof, or the further improvement of vertical retorts, according to the annual report of the Carbonization Committee of the American Gas Association. Many ingenious installations have been made which give the smaller plants the advantages of large charges and long carbonizing periods at approximately the same construction cost as the older types of installations. The coke oven type of plant seems to lend itself admirably to the use of labor saving devices in the handling of coal and coke, and to the saving of labor and making the operator's job more attractive.

It is necessary to state that the results obtained in these installations have not in general been better than those obtained in the efficient installations of through retorts with charging and discharging machines, and in the later installations of vertical retorts. It is clearly seen by the operators, however, that as these plants grow in size, the results obtained will materially improve to a point where older installations cannot compare with them.

There is no such thing as one carbonizing process that is best adapted to all localities. One can only be chosen after a thorough study of the local conditions, and this study should include a consideration of:

(1) The market for coke and other residuals.

(2) The capacity of the plant required and the probable future development.

(3) Transportation facilities.

(4) The conditions surrounding the available site and its proximity to the market and to other industries.

(5) Coal supply available.

(6) Local labor conditions.

Although an increasing number of installations have been coke ovens, adaptations thereof, and vertical retorts, it is a fact that retort benches—both horizontal and inclined—still fill the requirements in certain locations, and a large number of installations of this type have been made since 1916. This type of carbonizing equipment is so familiar that no description is here given of the new installations.

Outside of coke ovens and smaller adaptations thereof, the type which commands most attention is the new vertical retort installation. The Rochester plant, the largest installation of vertical retorts in this country, has been in operation for a year.

The largest percentage of all the carbonizing capacity installed since 1916 has been in the form of coke oven installations. The coke oven installations are, however, nearly all of large capacity as compared to other types. Conditions brought on by the war made coke oven construction a national necessity, and this large percentage may not properly indicate the future trend.

Many large coke oven installations have been made where a combination of business opportunities made it possible to locate them so as to supply city gas to adjoining cities and towns. Many more such opportunities will be developed in industrial communities, and the progress in oven construction and operation becomes more and more the gas man's business.

How to make the best use of this comparatively new facility is a problem which should command his best attention.

The declining of prices of by-products from coke ovens to a peace-time basis has halted the feverish activity in coke oven construction. Much misleading information has been published as to the profits to be derived from the recovery of by-products. This is to the detriment of legitimate investments in the gas industry.

A Bench of Carborundum

An experimental bench has been built at the plant of the Springfield Gas Light Company, Springfield, Mass., in which the retorts of the Glover-West vertical bench are made entirely of carborundum material. This bench has been in use nearly a year. It was found on account of the high conductivity of the carborundum and the thinness of the walls of the retort, that changes would have to be made in some of the construction. The bench has not been in operation for a sufficient length of time to state whether or not it is a success; but it has been determined that the fuel consumption is much lower than in smaller benches of other construction, and that the capacity has been materially increased.

For a number of years there have been installations abroad for the production of gas coke and light oils, by what is usually termed the "low temperature process." This did not seem of importance to the industry in this country because of our plentiful supply of cheap anthracite coal, coke, gasoline, and transportation. The war lessened the supply and increased the cost of these important articles, and a considerable number of processes of low temperature carbonization were projected. A continued high price may enable these processes to fill a need in our commercial structure.

Distilling at Low Temperatures

Numerous experimenters are working to develop commercial processes for the distillation of coal at relatively low temperatures. The two main purposes of such experimenters are the conversion of a relatively

low grade, high volatile coal or lignite, into a high grade, smokeless, solid fuel, and the production of a combustible liquid distillate which may be converted into a satisfactory fuel for internal combustion engines or into other high grade products.

In all of these processes, the yield of gas suitable for general distribution is low; hence they give little promise of being of any special importance to the gas industry directly. Possibly one or more of them may be commercialized on a scale large enough to make the gas obtained as a by-product something of a factor locally. There is also a possibility that should any of these processes be successfully developed, the solid fuel produced thereby might in some cases prove a suitable fuel for water gas manufacture.

Unfortunately for the workers in this field, costs of construction and of operation have nearly trebled during the past four years, whereas the prices of the crude tar or oil, and of the refined products made therefrom are now about the same as before the war; hence there is less inducement for expenditure in developing such processes than there was a few years ago.

In some cases, the carbonaceous residue is expected to carry from 10 to 18 per cent volatile. This may be burned without producing smoke; practically all of the volatile matter which may be readily liquefied, as well as the combined water has been expelled. In several processes this partial distillation is effected in retorts through which the pulverized coal is moved with constant agitation; thus the mass of the coal is heated uniformly to the temperature necessary to secure the desired result without any portion of it being overheated. The residue may then be briquetted. Some investigators are experimenting with such a process under vacuum—others are operating at about atmospheric pressure. There appears to be some difference of opinion as to the relative value of the tar or oil obtained under these different conditions.

By another process the coal is placed in narrow cast iron containers which are passed through a heated oven, the volatile matter being collected and condensed.

So long as the unfavorable conditions noted above continue, the commercial success of any of these processes is dependent upon overcoming very heavy handicaps.

F. G. Curfman, of the Improved Equipment Company, supplied the committee with the following information as to types of recent installations made by his company:

In the early part of 1915, the costs of labor and coal started on their upward trend. In the face of this, the average gas company was unable to get any increased rates and in some cases, the existing rates were reduced by the commissions in the various States.

The Need that Existed

The Improved Equipment Company, appreciating the gas companies' position, realized that it was necessary to develop a carbonizing unit, which, while using if possible, the old foundations, retort houses and accessories as far as possible, would tend to overcome these conditions. To effect the necessary economy in holder costs, carbonization in bulk offered the best solution; so a small gas oven was developed and the first installation made at the Washtenaw Gas Company in Ann Arbor, Michigan.

The first unit consisted of nine ovens which were erected on the foundations on which had stood three standard stop-end ¾ depth benches of 6's. The rear wall of the retort house was removed and back binders on these ovens were extended to support the roof. The ovens were put into service on February 2, 1917. The results obtained from operation were practically the same in the way of yields of gas, tar and ammonia, as had been obtained on the stop-ends; while the labor cost per thousand feet of gas was reduced to such an extent that this saving alone netted a large return on the investment. Later, an additional unit of nine ovens was added to the original stack and the gas produced on these six benches of three ovens each, was equivalent to what had originally been produced on ten benches of ¾ stop-end 6's. These benches have been in continuous operation since they were started and to date have shown no appreciable wear.

The most serious problem to solve was the proper design of the baffle plates. The original baffles were made of steel angles and steel plates, hinged at the top of the door frame and pulled up by a hoist. These soon warped out of shape. After a number of experiments, cast iron baffles were designed, which are lifted out of the oven by heavy levers attached to the pusher and quenching cars. These have proved very successful.

Another difficulty encountered was the very high temperature on the top of the ovens, especially around the off-take pipes, causing great annoyance by the formation of pitch in the hydraulic mains. This difficulty has been remedied by generous flushing with crude liquor in the hydraulic main and in some of the larger ovens slight alterations were made which have entirely eliminated the hot space at the top.

At the Ann Arbor plant a Doherty washer cooler has been installed, the liquor from which, supplies the flushing system in the hydraulic and foul mains, after which it is returned to the washer cooler. This method has proven absolutely satisfactory. No stoppages have occurred since its adoption and the temperatures of the gas in condensing are absolutely under control.

The battery of six ovens at Ann Arbor has been producing an average output for a period of several months, of 660,000 cu. ft. of gas per day. These ovens are easily operated by five men to a shift, which handles all work from reclaiming the coal from bunkers to putting the coke through the screens and into storage, including also the care of the ovens and the stoking of the fires.

The fuel needed in the furnace per ton of coal carbonized varies from 280 lb. to 300 lb., depending upon the heat required, as demanded for the amount of gas to be produced. Heat control is very flexible and temperatures can be raised or lowered according to the fluctuating demands for gas. The average monthly reports show a gas yield of 5.3 cu. ft. per pound of coal carbonized, with a calorific value of 610 gross B.t.u.

The ammonia and tar yield is normal. The accumulation of carbon on the sides and top of the ovens has been stopped entirely by the introduction of steam, so that there is no scurfing. The ovens are equipped with the Doherty Bench Fuel Economizer, which accounts for the low fuel consumption and the convenience and ease of controlling the heats.

At the plant of the Michigan Light Company at Pontiac, the Improved Equipment Company has installed fifteen ovens, similar in design to those installed at the Ann Arbor plant except in size. The ovens in Pontiac

are 12 ft. 4½ in. over-all in length, 12 in. wide and 6 ft. high—each unit containing three ovens, heated with an enclosed recuperative type of producer which is equipped with the Doherty Bench Fuel Economizer. The charges in each of the Pontiac ovens average 2,600 to 2,800 lb. The yield of gas averages about 5.5 cu. ft. per pound of coal carbonized. The bench fuel is somewhat lower than that obtained at Ann Arbor. The labor cost is very low but on account of operating the ovens in connection with some retort benches, accurate distribution of the ovens cannot be obtained.

At the plant of the Michigan Light Company at Jackson, the Improved Equipment Company has built thirty carbonizing chambers of the horizontal type; each oven is 23 ft. over all in length, 12 in. wide and 6 ft. high; each oven holds a charge of about 4,700 pounds. These ovens are grouped, three to each unit, and heated with an extended recuperative type of gas producer, which is equipped with the Doherty Bench Fuel Economizer.

The principal difficulty encountered at Jackson was the overheating of the gas at the top of the oven. This has been eliminated and the results now obtained compare very favorably with our former installations. The yield is good and the bench fuel required is quite low. In both the Pontiac and Jackson plants the Doherty washer has been employed to wash the gas.

The coal is introduced at intervals through the charging holes located in the top of the ovens. After the coal has been coked for a period of from 8 to 12 hours, depending upon the capacity desired, the oven doors are opened and the baffles removed. These baffles are heavy cast iron angle plates which are inserted in each end of the oven for the purpose of keeping the coal in a hot temperature zone, thus insuring a uniform quality of coke.

The ovens and the setting blocks supporting them are all constructed of silica materials.

The main advantages of this type of carbonizing unit are:

(1) Low first cost.
(2) Low labor cost.
(3) Low fuel cost.
(4) Simplicity of design and ruggedness of construction.
(5) Simplicity of operation and distribution of heat.
(6) Superior coke.

Our experience shows that the yields of gas, tar and ammonia produced on these oven installations are approximately the same as those obtained on the modern type of through retort benches and due to the simplicity of operation, the troubles from labor are almost eliminated, as no skill in the handling of this equipment is required and any ordinary laborer can be broken in and instructed in the operation in a very short time. The auxiliary coal and coke handling machinery is of standard design and simple construction.

Horizontal Gas Ovens

Leigh Wickham, of the Parker-Russell Mining and Manufacturing Company, describes the type of installation his company has been making as follows:

Since the last report of the Carbonization Committee to the gas companies in 1916 one improvement of great value is a new type of carbonizing unit, i. e., the gas ovens which are designed and built for carbonization in bulk. There have been built a number of horizontal gas ovens, as well as inclined gas ovens, each of which has its merits. The horizontal type of oven has given unusual satisfaction, the principal advantages being the saving in amount of labor, while the class of labor required, need not be so skilled and is easier to secure. We built a gas oven installation of 125 ton capacity at Kalamazoo in 1918 and it is being operated on 1.04 hours of labor per ton, and if the capacity were doubled, for example, the labor needed per ton would be considerably reduced.

The principal improvement in the ovens consists of maintaining a cool zone at the top, through which the gas passes on its way out. The tops of the ovens are made of blocks of special material which are thicker than those forming the oven walls, and this, together with the fact that the heating flues are kept below the top of the ovens, prevents the gas space over the charge from becoming overheated, and the gas passes off without breaking up. The primary and secondary air are introduced under forced draft, which insures a constant supply. The quantity of both primary and secondary air is measured before it enters the recuperators. The secondary air entering the recuperators is controlled by dampers which permit the regulation of supply to any part of the combustion chamber.

The ovens are heated by a system of vertical flues. The producer gas and secondary air are brought together to give complete combustion at the lower end of these flues and the products of combustion are carried up through them to a horizontal collecting flue extending the entire length of the oven. Three of the vertical flues at one end are used to carry the waste gases down to the recuperators. At the top of each vertical flue there are dampers by which the heats can be regulated and distributed evenly throughout the length of the oven.

The oven doors are of the self-sealing design which was considered by many well-informed coke oven designers and operators an impossible accomplishment, but they have proved entirely satisfactory and successful. The self-sealing doors are considered a convenience in many ways, as they do away with the nuisance of luting the doors each time they are opened and they make it possible to keep floors clean. There is also a saving of time in taking off and putting back the doors.

The charges are placed in the ovens in the usual way—that is, from a coal filling wagon with three spouts, running on top of the ovens. After the ovens are filled, the charges are levelled off by a coal leveller mounted on the pushing machine. The pusher is of the usual type, similar in all respects to those used in coke oven practice.

The generators are located on the pusher side and have ample grate surface to heat the ovens on about 275 lb. of dry coke per ton of coal carbonized. The yield per ton when a good grade of gas coal is used is about 5.3 cu. ft. per pound, and the ammonia yield is over 5 lb. per pound of coal carbonized. About fourteen gallons of an exceedingly high quality of tar are recovered per ton of coal carbonized.

We designed and built a plant at Rome, N. Y., consisting of the coal and coke handling machinery and five benches of inclined 6's with a capacity of ten tons per bench in 24 hours. The retorts were 16 by 26 in. cross section and 16 ft. 10 in. long, made of silica sections and supported by silica settings. The benches were equipped with the Congdon scrubber standpipe system and so far, no stopped standpipes have occurred.

The coal is fed into the retorts by a single larry (patented) which contains three spouts for the varying levels of retorts; the principal advantage of this larry is that it saves space and time in filling the retorts. As the tracks on which it travels are elevated well above the benches, the coal shoots out of the spouts with such force that the retorts can be filled full and evenly. A charge of 1,000 lb. can be placed in them and it can be burned off in six hours.

W. E. Steinwedell had this to offer as the Gas Machinery Company contribution:

This company has built more capacity in by-product gas ovens than in any other type. We have made such installations in the following plants:

Linton, Ind., three ovens.
Battle Creek, Mich., eighteen ovens.
Flint, Mich., forty-eight ovens.
Evansville, Ind., twenty-four ovens.
Waterbury, Conn., twenty-seven ovens.
Memphis, Tenn., twenty-seven ovens.

By-product gas ovens, in which all of the gas is recovered, and which are provided with generators and recuperators, are heated by part of the coke made or by coal, and have become a standard means used by gas companies for carbonizing coal in considerable quantities.

As the best grades of gas coal are not always available and are becoming more difficult to obtain, it is frequently necessary for gas companies to use grades which will not produce satisfactory coke if distilled in retorts.

Gas companies are installing gas ovens on account of the improvement in operating results, reduction in quantity of labor and simplification of the work over retort processes.

All of the gas is recovered in gas ovens, whereas about half the gas is used to heat by-product coke ovens, and the initial investment in gas ovens for a given quantity of available gas production is therefore only about one-half the initial investment in coke ovens for the same production of available gas.

Design

By-product gas oven plants are furnished with either inclined or horizontal ovens. The inclined ovens require less ground space and it is unnecessary to level the coal after it is charged into them.

Gas ovens are adaptable to almost any size of gas plant, and are built in 4,000 pounds capacity per oven and upward.

The ovens are built in units of three, which are heated by a producer of the extended type provided with a centrally located charging door, thus permitting the fuel to be charged by gravity from a fuel car which runs on an industrial track. A blower operated by superheated steam, supplies primary air to the producer, prevents the formation of excessive clinker, and insures a uniform production of producer gas. Full depth recuperators are provided, and the weight of the setting does not rest directly on the recuperators, but is carried on the dividing walls between them.

The combustion chambers are of maximum size, and constructed on the same principal as the heating chamber of a bench; this provides a slow movement of the heating gases through the combustion chambers, as well as efficient combustion.

The combustion chambers are thoroughly accessible without having a large number of holes through the top of the setting; these holes tend to increase the heat in the top of the ovens and thereby overheat and break up the rich gases which are being generated from the coal.

Each combustion chamber has its own recuperator, entirely independent from any other, and with readily regulated air supply and waste gas dampers.

The furnace castings and oven mountings are of special design and have proven their efficiency in actual practice.

The scrubber standpipe system is used to saturate the gas with moisture and prevent stoppages; and the liquor circulating system is provided with a tar displacement tank to insure clean liquor for circulation and prevent stoppages of the liquor piping.

A roof covering, stairways and platforms are provided for convenient operation.

Coal and coke machinery is furnished to accord with the size of the installation and the local conditions.

By-product apparatus to recover the tar and ammonia, and to eliminate the impurities from the gas is furnished complete. The ammonia can be recovered as crude concentrated liquor, sulphate of ammonia or as aqua ammonia.

Operation

Gas ovens have the following advantages over retorts:

(1) The gas is of better quality as it is not exposed to excessive superheating.

(2) Inferior coal which is not suitable for making good coke when carbonized in retorts, may be used in either inclined or horizontal ovens to produce a satisfactory quality of gas and coke.

(3) The coke is harder and more uniform in shape and may be used for metallurgical purposes. The coke is of the best quality, density and hardness, contains little breeze, is suitable for domestic use, and is more easily sold, especially where by-product coke oven coke is sold in competition and commands a better price than retort coke.

(4) A minimum of labor is required, and the work is not as hard as for other carbonizing processes.

(5) The first cost for a given gas capacity is less.

(6) The maintenance and repairs are less, due to there being no complicated or an excessive amount of machinery.

(7) The ammonia yield is greater.

J. S. DeHart, Jr., of the Isbell-Porter Company, said:

The only work which his company has done has been the improved adaptation of the Woodall-Duckham continuous vertical retorts to meet conditions for the carbonization of American coals.

The original English design consisted of a deep rectangular producer set between the retorts and built with the old-fashioned step grate, which has proved perfectly satisfactory for the coke from English and European coals.

We have had a great deal of trouble with this type of producer on account of the formation of clinker and the difficulty in removing it.

In our new design, the producers are arranged in front of the settings, readily accessible for barring down from the top and have about 150 per cent increased capacity.

We have also redesigned the retorts to substitute silica material for clay and to provide a little better arrangement of the secondary air to distribute the heat over the entire length of the retort.

J. H. Taussig told the United Gas Improvement Company's story as follows:

Our early experiences at Manchester, Northern Liberties, Hartford and Fall River were of such a nature that we were able to eliminate many of the smaller troubles that we had with vertical retort plants when we started the design of our newer types.

The two latest installations of our plants are Rochester, N. Y., and Fond du Lac, Wis. The former has a daily capacity of 4,000,000 to 5,000,000 cu. ft., and is heated with a detached producer plant; the latter is a very small plant of 400,000 to 500,000 cu. ft. daily capacity and is heated with producers attached to the setting.

Probably the greatest improvement, other than the adoption of silica as a refractory, is the character of the producers in both these plants.

Rochester Producers

At Rochester we designed and built five high pressure producers, equipped with mechanical cleaning and rotary charging apparatus. They were designed to handle small fuels, such as coke breeze and small anthracite coal, and are able to gasify from 20 to 25 tons per day of small coke and breeze with practically no manual cleaning.

They can be operated with CO_2 content and the gas varying anywhere from 3 to 10 per cent at the will of the operator.

The flame temperatures of the producer gas made, when burned in the settings, are controlled by the quantity of CO_2 in the gas, which in turn is regulated by the amount of steam used in the producer.

The ability to operate 21 benches with the same gas, whose heat value can be controlled at the source (and this heat value is of such constancy that there is practically no variation from day to day), gives a remarkable, simple and easy control to the plant and relieves the operator of much of the troubles that are common to coal gas settings having a producer attached to each bench.

The gas entering the settings is also rid of practically all of its dust and the life of the settings is thereby lengthened and the flues are kept clean.

One of the first objections that would come to one's mind in considering this system, would be the loss of heat due to conducting hot gases over such great distances as are necessary to distribute them to the various benches. By thoroughly insulating the flues, this loss of heat is almost negligible.

Heat Control

In conjunction with the ability to get a gas of constant heat value and constant sensible heat for fuel, measurement devices were installed that enabled the operator to regulate the quantities of materials at each bench at will—of both the hot producer gas and the air for secondary combustion.

Although means were provided that would take care of distribution in the settings, the design has been perfected to such an extent that these devices are not necessary, and the distribution of heat is taken care of automatically by the design and proper internal size of flues. There are also only two burners or two points where combustion takes place in the settings, in each bench, and these require no internal control. Thus the skill in regulating the distributing in each setting is entirely eliminated, and if the proper amount of gas and air, as measured in the meters attached to each setting, is supplied, the settings require no further control. In addition to the measuring device at each bench, there is a central control station at which pipes leading to the outlet of each setting, are connected to a central gas analyzing apparatus. At this point, gas from any bench can be drawn and analyzed. There is also a pyrometer connected to the outlet of each setting, by which temperature can be read at one point.

Bench Accessories

Considerable improvement has been made in the design of the top and bottom mouthpiece castings, and such a thing as a stopped take-off pipe is not known.

The usual hard labor in cleaning these pipes is also eliminated. In order to reduce any liability of pitch trouble, sprays have been inserted in the dip pipes of the hydraulic mains and these reduce pitch trouble to a minimum.

Recuperators

A special designed recuperator having minimum joints which are very carefully fitted and cemented together to part of the setting, is also used.

Heat Insulations

The entire settings are insulated with material varying in thickness from 2½ to 4½ in., thereby reducing to a minimum the heat loss through radiation.

Larry

Considerable attention has been paid to the requirements of the larry for charging coal entering the retorts. This larry is motor driven. It contains a weighing hopper; the coal is weighed by an automatic punch scale before each charge.

The larry has as part of its equipment, a device for automatically closing the lids after the charge is dropped into the retorts, thus reducing to a minimum the amount of smoke that leaves the retorts on charging.

Each bench has its own hydraulic main and individual take-off pipe with an individual automatic tar overflow, and a valve for controlling the seal of the main. This equipment is of great advantage where it is necessary to get uniform B.t.u. or candle power values in the gas.

The plants are also equipped with governors for controlling the pressure at the hydraulic mains, and a safety seal which is regulated to blow off in case the exhauster stops.

Both top and bottom mouthpiece castings have been improved upon over earlier designs.

For each stack of seven benches, a waste heat boiler is provided which makes practically all the steam required for the plant. The thermal efficiency of a U.G.I. vertical retort plant with the addition of waste heat boilers, is very high.

Attached Producer Type

The other type of plant as recently built for Fond du Lac., Wis., has some features in addition to those mentioned for the Rochester plant. The attached producers are of such a design as to eliminate the necessity for clinkering the fires and require the minimum amount of hand labor. They also give a good quantity of producer gas, practically free from dust.

The producers are equipped with large storage space above the fire zone, so that they can be filled at comparatively infrequent intervals. They are well adapted for small plants, where minimum labor is available for operation.

They are also so designed that they can handle the small amount of breeze made at the plant, which results in great saving of the coke, as all that will be for sale will be lump and of saleable size.

The Hartford, Conn., and Fall River, Mass., plants have been brought up to date by refilling the benches with silica material. The result has been to increase the capacity of these plants by 33 per cent.

Size of Units

U.G.I. vertical retort plants are now designed to make as low as 7,000 cu. ft. an hour. These small installations have retorts and iron work similar to the larger plants.

H. M. Chapman spoke for the Semet-Solvay Company as follows:

The first plant built for furnishing gas for city consumption, started the delivery of gas in 1902. Since that time additional plants have been added until in 1918 there were eight Semet-Solvay plants delivering gas to cities, and in 1919 this has been further increased to ten plants. The total gas delivered by these plants during the year 1918 amounted to 14,911,747 per 1,000 cu. ft. This undoubtedly represents a very large proportion of the total by-product coke oven gas delivered to the consumers.

Supplying gas from ovens where no gas separation had been contemplated has been tried out and works very successfully. Using high grade coals, one of the plants during a year's time sent a gas to the consumer averaging 600 B.t.u. This makes a very flexible operation and meets some very exacting conditions.

For some time it was the general impression that a good grade of furnace coke, or even foundry coke, could not be produced by the use of straight high volatile coal. This difficulty was overcome and by the proper blending of two or more high volatile coals, it has been possible to produce a metallurgical coke which meets very exacting requirements. While this, in a way, has nothing to do with gas manufacture, yet on the other hand, it is important, as it enables the higher grade coal to be used in the ovens, which in turn gives a better quality of gas for city distribution. I might also add that on the plants where there is no gas separation, the ovens may be heated with producer or with blue water gas, and in this way increase the amount of gas that particular plants send to the city. This naturally increases considerably the cost of the gas delivered for consumption, and the financial success depends, of course, on local conditions.

C. J. Ramsburg said this for the Koppers Company:

The year 1918 witnessed the tenth anniversary of the commencement of operation of Koppers ovens in America. The first battery of seventy ovens, constituting part of the 280-oven by-product coke plant of the Illinois Steel Company, was put into operation in the fall of 1908 and has been in continuous operation ever since. The ovens are in splendid condition and no repairs have ever been made on the brick work with the exception of occasional replacements of jamb brick, which are minor incidents of regular operation. The performance of this unit is a striking example of the durability of the Koppers type of oven.

Among the developments since 1916, of special interest to the gas industry, may be mentioned:

(1) The increased demand for the cross-regenerative combination oven.

(2) The application of producer gas to oven heating.

(3) The increase in variety of coals carbonized in by-product ovens.

(4) The development of the triangular flue type of by-product coke and gas ovens.

During the war there was intense activity in the construction of Koppers by-product coke ovens. There are now in operation, or approaching completion, in the United States, about 6,000 Koppers ovens having capacity to coke over 39,000,000 tons of coal per year. The capacity of by-product ovens of all types in 1908 was about 9,500,000 tons and at the close of 1915 about 24,000,000 tons coal per annum.

Of special interest in this report are the plants of Koppers ovens selling all their surplus gas for domestic purposes. These have been installed as follows:

Laclede Gas Light Company, St. Louis, Mo.: 55 combination ovens, started operation 1915.

Seaboard By-Product Coke Company, Jersey City, N. J.: 55 coke ovens and 110 combination ovens, started operation 1917.

Minnesota By-Product Coke Company, St. Paul, Minn.: 60 regular combination and 5 triangular flue combination ovens, started operation 1918.

Indiana Coke and Gas Company, Terre Haute, Ind.: 30 coke ovens, started operation 1918.

Providence Gas Company, Providence, R. I.: 40 combination ovens, started operation 1919.

A plant of fifty Koppers cross-regenerative coke ovens is in course of construction for the Birmingham Coke and By-Product Company, and will supply gas to the city of Birmingham, Ala.

By-product coke plants installed for the following companies since 1916 are also distributing part or all of their surplus gas for domestic purposes:

Bethlehem Steel Company, Sparrows Point, Md., 360 ovens.

Toledo Furnace Company, Toledo, Ohio, 94 ovens.

Bethlehem Steel Company, Steelton, Pa., 360 ovens.

The five plants listed above as being built to sell all of their surplus gas for domestic purposes have an aggregate capacity to carbonize 6,585 tons of coal per day and if operated as straight coke ovens using part of their gas for heating the ovens, will produce approximately 40,000,000 cu. ft. of surplus gas per day. All except one battery of 55 ovens of the Seaboard By-Product Coke Company and 30 ovens of the Indiana Coke and Gas Company, are equipped to be op-

erated with producer gas as the demand for domestic gas increases.

Use of Producer Gas for Heating Ovens of the Providence Gas Company

The first by-product coke plant in America to use producer gas regualrly for oven heating was the plant built by the Koppers Company for the Providence Gas Company, Providence, R. I. The palnt has forty cross-regenerative combination ovens, each oven having a net capacity of 11.4 tons of cotal. The ovens taper from 18½ in. width on the discharge end to 15¾ in. width on the pusher end, and are 9 ft. 10 in. high and 37 ft. 10 in. long. The distance from center to center is 3 ft. 6¼ in. Part or all of the ovens may be operated with producer gas, as the demand for domestic gas varies. At present twenty ovens are being heated with producer gas made from coke breeze and the other twenty are being heated with coke oven gas. The system is thus very flexible both with respect to heating and to gas production. The experience of six months' continuous operation has shown that the uniformity of heating and convenience of operation are in no wise disturbed by the simultaneous use of such different types of fuel gas. The regulation of temperature conditions with producer gas is accomplished with even greater ease than when using coke oven gas. The efficiency of combustion and regeneration is very high.

The use of producer gas for oven heating is assuming increasing importance. In addition to the obvious advantages incidental to its production from cheap grades of fuel, such as coke breeze or high ash coal, its utilization presents a number of special advantages peculiar to by-product coke oven operation. Practically no attention needs to be given the fuel gas pipes, flues and nozzles. No carbon deposits are formed. Flue temperatures are remarkably uniform. The reversing system installed at the Providence gas plant utilizes an ingenious mechanism which is simple and accessible and operates with a very high degree of precision.

The plant has been operating regularly on twenty hours coking time, but ten of the ovens have been operated on producer gas for two weeks continuously at fourteen hours coking time and for four weeks at 14½ hours coking time, with highly satisfactory results as regards quality of gas, coke, by-products and efficiency of heating. The fourteen hours coking time corresponds to an average rate of carbonization of one inch oven width in 49 minutes—a remarkably fast performance. Analyses of products of combustion showed 17 to 18 per cent carbon dioxide with about 1 per cent of oxygen and practically no CO. The temperature of the stack gas was about 350 deg. C.

Coking of Illinois Coal at Plant of Minnesota By-Product Coke Company

Of great importance to the by-product coke industry in its affiliation with the gas industry, is the rapid application of by-product coking to new grades of coal. Various grades of Illinois coal were coked in Koppers ovens very soon after this type of oven was introduced into this country. For instance, a half million tons were so coked in 1914. But it has not been until recently that market conditions have been such as to create a distinct demand for the building of plants intended to use such coals regularly. In the fall of 1918, the U. S. Bureau of Standards made a test of one week's duration at the plant of the Minnesota By-Product Coke Company, which, during this period, was operated entirely on coal from Franklin County, Illinois. A quantity of the coke produced was shipped to the blast furnace plant of the Mississippi Valley Iron Company, St. Louis, Mo., where it was used for a period of ten days. Highly successful results were obtained and the furnace operators even expressed a preference for the Illinois coke over other grades to which they had been acustomed.

The plant of the Minnesota By-Product Coke Company is arranged to supply the domestic coke market rather than to make maximum yields of metallurgical coke. Undoubtedly with different arrangements for coke screening, larger yields of furnace coke would have been obtained. The average production was approximately as follows:

Dry furnace coke	56 per cent of coal
Dry domestic coke	11 per cent of coal
Breeze	4 per cent of coal
Total	71 per cent of coal

The test is to be published by the U. S. Bureau of Standards in the form of a bulletin which will be shortly forthcoming.

The Minnesota By-Product Coke plant has 65 cross-regenerative combination ovens, five of which, in a separate battery, are the triangular flue type. The ovens taper from 19½ to 17 in., are 9 ft. 10 in. high by 37 ft. long, and have a capacity of 12¼ net tons coal each. The plant began operation in January, 1918, and since then has been the regular source of the entire domestic gas supply of the city of St. Paul. The coal regularly used is a mixture of Elkhorn and Pittsburgh coals in equal proportions with about 15 per cent of Pocahontas coal.

Coking of Indiana Coal at Plant of Indiana Coke and Gas Company—Terre Haute

These newest ovens of the Indiana Coke and Gas Company are about 24 in. higher than any Koppers ovens previously built. The ovens are 11 ft. 9½ in. high, 39 ft. 1½ in. long, and taper from 17 to 15 in. They are 3 ft. 5¼ in. center to center and have a capacity of 12½ net tons of coal each. The increase of 2 ft. in the height of the ovens, thereby giving additional capacity, has been accomplished with perfectly satisfactory results. The plant has been operated continuously for a period of three weeks at 15 hours coking time.

The coke from the Terre Haute plant is sold almost entirely for domestic purposes. The rapidly increasing use of by-product coke from gas oven plants for domestic purposes deserves more than the passing mention that can be given it in this report. Important developments have occurred in the direction of controlling the quality of coke to meet a given demand, and the developments are proving to be as valuable in the non-metallurgical field as in the metallurgical.

The Triangular Flue Oven

Of special interest is the development, by the Koppers Company, of a new type of flue arrangement and construction, which we may call triangular flued, because the vertical flues are substantially triangular in shape.

(*Continued on page* 404.)

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As the Journal Views It

Do Not Be Misled

It is the fashion with some manufactured gas people when their eye detects that certain information relates to natural gas to pass it by feeling there is nothing therein for them.

The attitude of the American Gas Engineering Journal is that what pertains to *gas* has, with few exceptions, a value to all gas men whether they are handling manufactured, producer, by-product or natural gas.

The gas engine, with slight adjustments, will operate on natural and manufactured gas and even gasoline. Why then should the manufactured gas man spurn the findings and results of the engineer who is at the time employing natural gas?

Our leading article of this week's issue is not published exclusively for our natural gas readers or even primarily for them.

Large quantity steam production using gas as a fuel is a field directly ahead, where not in cases already attained, for the manufactured gas companies.

The bulk of experience in this branch of utilization is with the natural gas companies.

Mr. Mugg's article deals with the elimination of wastage and increase in efficiency of steam raising plants using natural gas.

Leave out the prefix and every suggestion he supplies applies just as pertinently to the manufactured gas man's task and with even greater force.

Superficial impressions to the contrary manufactured gas B.t.u., for B.t.u. is still by a wide margin the more expensive fuel.

If efforts to enhance efficiency in utilization pay for themselves many times over when dealing with nat-

ural gas they become almost a question of existence with manufactured gas in the steam generation field.

Mr. Mugg's article is just as pertinent and even more useful to the manufactured gas industrial engineer as it is to the natural gas industrial engineer. Let him not, therefore, be misled by the title.

Something We Were Waiting For

Vaguely we have all sensed the rise in importance of the by-product oven industry. Dimly we have glimpsed its possible reaction upon our own industry.

Nevertheless, the revelations in A. H. Harris, Jr.'s paper at the American Gas Association convention gave us a start.

Already its influence upon us is felt. In the immediate future its influence threatens our very welfare unless we find some means of broadening the market for the by-products of this other industry so closely alike to our own, and of incorporating within our works by-product ovens of our own perhaps.

And when the by-product oven takes over the burden of the diminishing natural gas wells, then it threatens even more fully to submerge our by-products market.

The by-product oven must be considered—gravely considered.

Mr. Harris' paper should be read by every thinking gas man. It is abstracted elsewhere in this number of the AMERICAN GAS ENGINEERING JOURNAL.

New Consideration in the Distribution Branch

Unfortunate indeed is the gas company that ten years ago laid down an important main of relatively perishable material.

It figured then, and good practice justified its reasoning, that it was sound business to install a system that would give out in a certain number of years at a cheaper cost than a main whose life was practically limitless. The interest on the difference in cost would more than pay for the rebuilding.

But the cost of this rebuilding was estimated on the basis of then existing costs. To-day we have a radically different situation. Still the main must be rebuilt. And other mains next year, still others the next, with little promise of lower costs of rebuilding.

The AMERICAN GAS ENGINEERING JOURNAL, perhaps ultra-conservative due to being the organ of an industry which has made almost a fetish of the word permanence, had never become fully reconciled to this reasoning which placed under two to four feet of earth a line that surely must come up again within a relatively short period. It rather preferred the satisfying thought of a main out of sight out of mind practically forever. It had a liking for that feeling of a job definitely completed as against the job merely temporized with.

Being old and conservative, its soul naturally stood aghast at the venturesomeness, the boldness, betrayed in this assumption to ability to predict what a work would cost ten years hence.

The gas industry has learned through its long experience that when it builds—builds to make gas, to create good-will to distribute gas—that it has paid to build for permanence.

The consequences that some companies will reap from the sharp figuring of their engineers on mains some ten years or so ago are apt to enhance even more the prestige of our fetish word permanence.

It seems to us that had we known what was coming a few years ago we would have put copper gutters under our home eaves instead of galvanized iron. It isn't the primary cost of material that counts so much nowadays. It is the repetition of human labor.

Carbonization Committee Report Shows Distinct Trend of Gas Indusdry Towards By-Product Oven

(*Continued from page* 402.)

This type may be either a by-product coke oven heated with coke oven gas; a gas oven heated with producer gas; or a combination oven which may be heated with either kind of gas. At the base of each vertical flue is an air port communicating with the regenerator, and a gas nozzle communicating with the usual fuel gas flue and the cross-regenerators are as in the ordinary Koppers oven. It will be seen that although there appears to be only a single row of flues in each wall, yet there are really two series of flues, one facing toward the oven on the right hand and the other toward the oven on the left hand. Corresponding to these two sets of flues there are two horizontal flues on top of the vertical flues, each pair of horizontal flues corresponding in position with the single horizontal flue in the well-known Koppers ovens. Thus each side of the flue wall has its own heating system and this is accomplished without making the total width of the flue wall any greater than in the usual rectangular flue type. This has never been achieved in any previous type of oven. The operations of reversing the gas combustion are performed exactly the same as in the case of a regular Koppers oven.

This type of oven has important advantages. The oven wall is obviously stronger and tighter mechanically than is the wall containing rectangular flues. The flue heating surface per oven wall is greatly increased. There are more flues, and, therefore, additional points of regulation; therefore, fine adjustment of temperature conditions is possible. Since each face of an oven wall has its own heating system, it follows that temperature conditions are less affected by pushing or charging an adjoining oven, than is the case with a rectangular flue construction. This condition also gives greater flexibility of adjustment.

A battery of five triangular flue ovens built as combination ovens to use either coke oven or producer gas, was erected as an independent battery at the plant of the Minnesota By-Product Coke Company. This battery was put into operation in the summer of 1918 and has been entirely successful and satisfactory from the start. This 5-oven unit has a producing capacity of over 1,000,000 cu. ft. of gas per day.

Gas Arcs Produce Highest Quality of Daylight—General Illumination Which Approximates Daylight Conditions, Is Recognized Today the Best Lighting Quality

Charles A. Luther, Manager of Peoples Company Lighting Division, Tells Why He Believes in Gas Lighting

There are plenty of good hard reasons for dispelling the occasional prejudice existing against the use of gas, which consists of a vague feeling that gas is old-fashioned and dangerous to the health. Charles A. Luther, manager of the Lighting Division of the Peoples Gas Light & Coke Company, knows most of those good hard reasons, and he also knows that they should be spread. In a talk given recently to salesmen in training for work in the lighting division, Mr. Luther expressed in a succinct fashion that should be the attitude of the salesman regarding the use of gas.

"There are possibly some of you gentlemen," he said, "who have made up your minds that gas lighting is a thing of the past, that it is harmful to your health and that it seems foolish to try to convince any one to install gas lighting when the customers can secure electric units.

"If you have any of these ideas tucked away in your head, please get rid of them, for there is no reason why gas lighting should not be in use in every factory, store, or residence along our line of mains, for it cannot only be demonstrated that gas lighting is in a class by itself when it comes to volume, quality and economy, but that it is also beneficial to the health of those work beneath it.

"If you will stop and think for a moment, you will recall that someone *told* you that gas lighting was a poor type of lighting from a hygienic standpoint. This is simply a little propaganda liberated from time to time by those parties who would like to install their own equipment.

"If you have your doubts about the hygienic value of gas lighting I would refer you to papers written by the following eminent men, authorities whose words are above reproach and men who are not subject to floating which ever way the wind blows:

"Dr. Rideal—Journal Loyal Sanitary Institute, 1908, Vol. 29.

"Dr. Toogood—Superintendent of Lewisham Infirmary, English Medical Magazine, February, 1911.

"Prof. Lewes—Published by British Commercial Gas Association, 47 Victoria Street, S. W. Lecture delivered in theatre, Manchester, Oct. 8, 1912.

"We have about 70,000 acreas installed in all kinds of places here in Chicago, from the largest to the smallest factories, and from the largest department stores to the smallest retail stores, and have received testimonial letters from all classes of business places.

"The fact that Marshall Field & Co. have about 300 arcs installed throughout their retail stores, the Boston store about 200, and the Hub about 75 should instil in your minds that gas lighting should be installed elsewhere.

"If your industrial prospect has made up his mind to instal other means of lighting, he will regret it. If gas is not installed, either as auxiliary or emergency lighting, he will find out just as the above mentioned stores found out the mistake in being confined to only one means of lighting.

"The volume of light and economy of operation secured from our arcs cannot be equalled by any other form of light. High candle power electric units have such a small filament that the glare from them prohibits their installation unless equipped with a heavy diffusing glass globe, thus necessitating the loss of from 35 to 60 per cent of their light, while our units can be installed with our daylight globe which has an absorption factor of about 15 per cent.

"In the past, your industrial consumers thought it was necessary to have localized lighting over their machines or benches. To-day it is a recognized fact that the best quality of light is a general illumination, which approximates daylight conditions. With our gas arcs, we can furnish the highest quality of daylight.

"You will find that work of selling a very fascinating game. You may never have sold any goods before, but more than once in our lives we must all demonstrate that we are salesmen. For at one time or another we have to sell our services, that is, we sell our point of view. When one person tries to induce another to his way of thinking, then he is using some of the main principles underlying salesmanship.

"The science of salesmanship is such a large one and can be approached from so many sides, that

a set of rules or a number of ideas which emanate from any one man, will not always apply to a man who sells another line of goods. In a good many cases they will not even apply to the man who sells the same line. We may have our own ideas and methods for selling our particular line, but we must of course possess certain fundamental qualifications in common with salesmen of other branches.

"A salesman in the employ of a company has, in the discharge of his daily duties, the opportunity to constantly exercise and develop to a high state of perfection every selling qualification which he possesses. By a conscientious self analysis and patient industry he has it within his power to so train himself that he will be a constantly increasing asset to his company. Continued effort and constant plugging, combined with absolute honesty, will eventually bring desired recognition and reward.

SPECIAL *vs.* GENERAL KNOWLEDGE.

"The day is past when we can hand an employee an order book, also slap him on the back, tell him he is now a salesman and to go out and get the business.

"The salesman of to-day must have a thorough knowledge of his stock-in-trade before he can go out into the competitive field and pull down the orders. This knowledge can be classified as general and specialized.

"This present day is the day of specialists. The management of a company knows that the more knowledge a salesman has in any one branch of its business, the more valuable that man is in pushing that particular branch, but to make a success of your special work you must know:

"1. The goods you are selling.

"2. You must make a constant study of the company's policy, so as to know the service you have to offer.

"3. You must know the kind of competition you have to meet, both active and passive and how to combat them.

"You should, of course, have a general knowledge of all branches of the company. Not only of the operating, application, general order, etc., but more particularly the other divisions of the commercial department.

"A carefully worded suggestion on your part while in conversation with a prospective industrial customer may lead him to consider the installation of another gas consuming unit outside of your industrial field.

"All selling divisions of commercial departments have experts in their line, the same as you are in your line, thus eliminating the necessity of your making a special study outside of the industrial gas consuming appliances. These experts are at your command at all times, so you can suggest to your prospect that you will have an expert call upon him to talk over whatever he may need.

"Bear in mind that when you have an expert from another division call upon the prospect that you have originated, you are co-operating with that division, as well as with the company, and it is bound to bring you returns, for the other fellow will be wide-awake to return your favor.

"There are many salesman who try to figure out how the other fellow was rapidly advancing while apparently he himself was at a standstill.

"Possibly he analyzed the conditions governing his slow advance as follows:

	Per Cent
Lack of appreciation by the management	99
Himself	1
Total	100

"The average man feels as if the management does not appreciate him and co-operate with him when he is not promoted or recognized as fast as the other fellow for his selling ability. He does not stop to think that it may be due to lack of co-operation on his own part.

WHY I BELIEVE IN GAS LIGHTING.

"Gentlemen, in conclusion I will give you my reasons for believing in gas lighting, with the hope that you, too, as gas employees, will believe likewise.

"First.—I believe in gas lighting, because I am *employed* by the gas company.

"Being employed by the gas company, I should believe in the many uses of their products, and as gas lighting is one of the various ways of using gas, I must *believe* in it in order to convince my prospects to use it.

"If I did not believe in the many ways of using gas, I have no right to draw my salary fram the gas company.

"Second.—I believe in gas lighting, because from my own actual experience in the lighting field, I have found that gas lighting, if applied in a business-like-way is not equalled by any other method of lighting.

"Third.—I believe in gas lighting, because our various users of gas lighting believe in it, which is evidenced by the hundreds of testimonial letters we have received from them.

"Fourth.—If the consumers who use our gas lighting believe in it, which is evidenced by the fact that they pay their bills, why shouldn't I believe in gas lighting?"

Annual Meeting of Empire State Gas & Electric Association

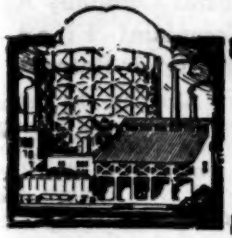
The annual meeting of the Empire State Gas & Electric Association will be held in Buffalo on Friday, Oct. 24. The sessions will be held in the Buffalo General Electric Company's building.

The reason for departing from the usual custom of holding the annual meeting in New York was the belief that many of the members would find it interesting and profitable to spend some time in Buffalo during the continuance of the Electrical Show, which runs from Oct. 16 to 25. In connection with the show an unusually interesting program of meetings and addresses is being arranged and will be announced later.

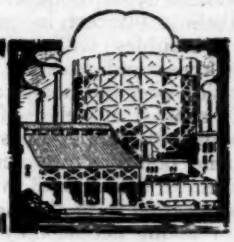
North Tonawanda, N. Y., only a few miles from Buffalo, is the only place in the State of New York where by-product coke oven gas is being supplied commercially on a standard of 550 B.t.u. Arrangements are being made by the association and will be announced later for a trip of the gas men to look over this situation.

Central Counties Company Building New Holder

The Central Counties Gas Company has begun the construction of a new holder in the city of Porterville, Cal. The holder is to be placed near the northern city limits for storage of an emergency supply in case of accident to the high pressure line. in Visalia,



NEWS OF THE GAS INDUSTRY



James D. Mortimer Speaks to People of Racine of Public Service Problems

James D. Mortimer, of New York, president of the Wisconsin Gas & Electric Company and numerous other large public service corporations, accepted an invitation to be the speaker at a recent luncheon of the Rotary Club in Racine, Wis. Mr. Mortimer had much that was interesting to say to Racine people regarding the public service problems confronting them. Mr. Mortimer recently appeared before a congressional committee which was investigating street railway rules throughout the country, and his testimony regarding the troubles of public service corporations and their plans for overcoming them attracted world-wide attention. Mr. Mortimer is barely forty years old, but is the directing genius of interests worth hundreds of millions of dollars.

More Gas Appliances for Fort McPherson Army Cantonment

After a long, hard and determined effort, gas is to be installed in officers' row at the Fort McPherson U. S. Army Cantonment, and in the kitchens of the officers' mess, this installation being separate and distinct from the gas service that has been rendered for a number of months past to the general hospital located at the fort.

Work toward the result now about to be accomplished was started over a year ago by I. H. Morehead, Jr., chief gas salesman of the Atlanta Gas Light Company, who succeeded without a great deal of effort in converting the authorities at the fort to his view. Since then those authorities have been devoting their atention to Washington, and have just now succeeded in having the order passed through for fifty gas ranges, including two or three of hotel size, and forty water heaters, including three big storage equipments.

Winners of Thrift Heaters at A. G. A. Exhibit

The Thrift heaters which were offered each day by the Welsbach Company at the A. G. A. exhibit as prizes to the persons guessing the nearest number of daily revolutions of the table on which the Thrift heater stood at the exhibit were awarded by the committee to the following persons:

Monday—Correct No. 1020. Won by B. A. Duvall, Baltimore (Md.) Gas Company. Guess: 1035.

Tuesday—Correct No. 1520. Won by H. S. Schuet, Buffalo, N. Y. Guess: 1520.

Wednesday—Correct No. 1461. Won by Mrs. J. B. Douglas, Philadelphia, Pa. Guess: 1460.

Thursday—Correct No. 1506. Won by Joseph Bees, Scranton (Pa.) Gas Company. Guess: 1506.

The committee was composed of R. C. Jasperson, Chicago; L. S. Bigelow, Buffalo, and W. T. Lambert, New York. They broke the seal of the counter underneath the table each evening and announced the winning number.

Athens Company Asks Permission to Discontinue Service

The Athens Gas & Electric Company, of Athens, Ohio, has asked permission of the State Utilities Commission to discontinue gas service to Athens and Chauncey, declaring it has been notified by the Logan Gas & Fuel Company that the latter concern is no longer able to supply it with gas. The Logan Gas & Fuel Company, in support, declared its supply has become so low that it has been forced to cut off a number of cities and towns in Indiana for the coming winter.

This is the first instance of a gas company taking advantage of the Miller law passed last winter which leaves it to the utilities commission to say whether a public utility may cut off service from a municipality. The commission will hear the case Nov. 11.

Increasing Use of Water Heater Creates Demand for Large Meters

The city of Atlanta, Ga., is calling for more large size gas meters than ever before, according to C. J. Weinmeister, superintendent of distribution of the Atlanta Gas Light Company. Mr. Weinmeister says that in July a sufficient number of 30-A gas meters was ordered to keep the company supplied until next year, but that this supply was depleted so that the July order had to be repeated recently. About 508 of this size of gas meter were recorded on June 30 as being then in service on Atlanta mains.

The only reason to which Mr. Weinmeister can attribute this increased demand for the larger domestic meters is the growing number of automatic gas water-heaters in service.

Samuel Insull Speaks Before "Advance Club"

Eleven Per Cent of Peoples Company Employees Have Been in Its Service Over Fifteen Years—Tells of Advantages Accruing to Those in Company's Employ

Samuel Insull in an address before the "Advance Club" of the Peoples Gas Light & Coke Company, of Chicago, appealed to the company's employees to take advantage of the many opportunities offered by the company to its employees. Mr. Insull called attention to the fact that 587 of the company's men and women, which is 11 per cent of the entire force, have been in its service for upward of fifteen years. Mr. Insull said in part:

"I am not going to keep you a very long time, but I want to give just a few minutes to the advantages which accrue to all who work for the Peoples Gas Light & Coke Company. Long years of service entitle us to pension. There is a

welfare department which takes the liveliest interest in our health, in our troubles; willing to assist us in sickness and to keep such supervision over our health as to protect us against ourselves if we are not willing to protect ourselves. That same policy is pursued with relation to educational work, and in connection with the Advance Club our young people may obtain education on special subjects.

"And while I am drawing attention to that, and seeing before me so many young men and women, I want to appeal to them to take advantage of their opportunity. The generation which I represent did not in their youth have the opportunities for study and improvement which are freely offered to young people to-day. It is open to every young man and woman to use part of his or her leisure time in study, so as to be fitted for advancement when opportunity offers. The company is doing all it can to make the path of study easy, pleasant and profitable. There is no position in the Peoples Gas Light & Coke Company which is not open to the youngest who starts in its service; there is no reason why he should not aspire to the highest position in the corporation. It is not a question of natural ability or great genius, but the full utilization by any young man or woman of average and ordinary intelligence of the opportunities offered."

Iroquois Company Finds New Gas Well

The Iroquois Gas Company has a new source of supply for the coming winter in the town of Cowlesville, N. Y. The company, having received a permit from the town of Bennington, Vt., to pipe the gas away, is now at work ditching and laying pipe which will be connected with the large mains. The contract between the town and the company provides that the village of Cowlesville be first supplied if 85 per cent of the families will take it, and as nearly every family wants it, the people of this village are looking forward to the convenience of gas. In this new gas field is one of the most wonderful wells in the State. There are four wells already completed, and drillers are busy on others. Four derricks are being used in the vicinity.

Chicago Company's Industrial Business Expanding Rapidly

Company Meets Successfully Sharp Competition of Oil Fuel

Contracts have been secured by the Peoples Gas Light & Coke Company, of Chicago, to supply gas to the smelters and furnaces of three new porcelain and enameling plants that are about to commence operation in Chicago. They are the Bauch Porcelain Enameling Company, the Cribben Sexton Company and the Ceramic Company.

The opening of these concerns will add about 4,000,000 cu. ft. of gas per month to industrial consumption. The business was secured in competition with oil fuel.

One of these firms engaged the services of a large consulting engineering concern in Chicago to advise them as to their equipment and fuel they should use for this work.

These engineers recommended fuel oil to their clients, largely on the basis of operating costs. The industrial department of the Peoples company refused to accept this as final, and by laying before the heads of the firm the advantages in the use of gas finally gained the consent of this firm to hold a meeting at which they, representatives of the engineering concern and of the gas company, should be present. The meeting was called and the case argued "in open court," with the result that the gas company was finally given the contract for the gas.

Other important contracts recently closed include one from the Hoskins Process Developing Company, 4035 West Kinzie Street, Chicago, for gas for metallurgical furnaces, representing an added consumption of 1,000,000 cu. ft. per month. A contract was also closed for the core oven equipment for gas to be supplied the Semi-Steel Test Foundry Company, a consumer of half a million cubic feet a month.

The efficiency of the industrial department of the company has been highly praised by officials of the Peoples Gas Light & Coke Company for the results which it has obtained in recent months.

This department, in the face of vigorous opposition, has succeeded in landing a number of big contracts, contracts that help materially in the rapid extension of the gas engineering industry generally.

United Natural Company Answers Complaint Filed Against Higher Rates

In an answer filed with the Public Service Commission at Harrisburg, Pa., by the United Natural Gas Company in the complaint of the Borough of Farrell, Pa., against the proposed increase in rates, the respondent asserts that if the new plan "for the conservation of gas," as advertised by the schedule, is not permitted to stand, the company will be unable to furnish a supply of gas to all of the consumers and will be compelled to withdraw from the Borough of Farrell, Pa.

The company contends that it is not required as a Public Service Corporation or by virtue of its charter rights and obligations to furnish natural gas to consumers in the Borough of Farrell for the reason that the territory now occupied by the Borough of Farrell is not within the limits of the places designated where natural gas is to be supplied by the company.

It is further contended that the rates complained of are less in comparison with other commodities used for fuel and light and are a "fair and reasonable return on the investment." The company sets forth that the demand for gas is beyond its present supply, and the supply is rapidly diminishing and getting less from year to year. It is to the advantage of consumers, therefore, to conserve the supply. The company contends that it cannot furnish gas to new consumers unless the plans for conservation are adopted.

Higher Sales in Larger Quarters

The new office and display rooms of the Arkansas Valley Gas Company were opened last week at Arkansas City, Ark. The rooms are large, with excellent display space. The sales of gas appliances have been unusually heavy during the past week, indicating that more commodious quarters are responsible, officers of the new-business department believe.

In every town where the new-business department of the gas division has opened offices an increased volume of business was reported for the month of September. In Winfield twenty-one gas ranges were sold during the month. Eldorado, Ark., also reported a favorable month.

Marshfield, Wis., Still Seeking Gas Plant

The Chamber of Commerce has not abated its efforts to secure a gas plant for the city of Marshfield, Wis. The effort to interest the Oneida Gas Company, of Rhinelander, Wis., having failed has only served to increase the interest and determination of the committee in charge of this activity to give the public an opportunity to have gas in their homes.

The committee has succeeded in interesting W. J. Stinson, of Minneapolis, a gas engineer of twenty-five years' active experience, and D. A. Frerichs, who has until recently been the sole owner and operator of the gas plant at Bemidji, Minn. These men have made a survey of the city of Marshfield and its possibilities in developing a gas business here that would insure an interest-bearing investment to the stockholders.

It is reported that the fuel question is becoming one of growing importance to the people of Marshfield, Wis.

New Low Depth Discovered for Natural Gas

An important development of natural gas in Callahan County, Texas, has been reported. The Ohio Cities Grant No. 1, at a depth of 640 ft., came in, making three to four million feet of gas. The well is situated four miles southwest of Putnam, Texas. Very little salt water was making along with the gas. An oil gas field has been discovered, and gas men attach importance to the development as it is an indication of a new low depth.

Higher Rate Granted Quincy, Mass., Company

The Board of Gas and Electric Light Commissioners of Massachusetts has authorized the Citizens' Gas Light Company of Quincy, Mass., to increase the price of gas to $1.35 per 1,000 cu. ft., an advance of 10 cents. The new rates are effective from Oct. 1. The one revised had been in operation since July 1, at which time it was decreased from $1.40 in the belief of the board that operating costs would lessen. Later the company petitioned for a revision of the decision on the ground that high prices were continuing and that it was operating at a loss.

Motor Fuel a Problem

Oil Industry Cannot Adopt Definite Standard for Gasoline Much Longer

Henry L. Doherty, a director of the American Petroleum Institute, reported progress of the institute's co-operation with motor-car manufacturers, at a recent meeting of the directorate in Colorado Springs.

Some time ago, as a result of the joint meeting of the representatives of the petroleum industry and the automotive industry, a joint conference committee of ten, five from each industry, was appointed to consider the motor-fuel problem, Mr. Doherty being chairman of the petroleum committee and John N. Willys, of the Willys-Overland Company, being chairman of the automotive committee. Mr. Doherty at Colorado Springs gave a verbal report as to the plans of the joint conference committee, expressing the view that much good would come out of the point of contact that had been established. Mr. Doherty gave a resume of a meeting held with this committee in New York on Aug. 21, at which time he stated it was decided that it was impossible for the oil industry to adopt definite standards for gasoline for more than a short period of time; that it was also agreed, in order that the automotive industry might have some advance notice as to what they might expect in the way of quality of gasoline, that a forecast for the ensuing year would be made with an estimate for the following year.

He further said the automotive industry, on their part, agreed to submit a list of the problems confronting them in this matter of motor fuel, with a view to the oil industry studying the same, and that meanwhile it was the unanimous opinion that the engineers and technical men in both industries should, in their own laboratories, conduct research work, with a view to solving the problem, and that if, in the judgment of the committee, this method of procedure would not work out satisfactory, a plan for the establishment of a central research laboratory should be submitted to the joint conference, together with an estimate of the cost of same and the method of raising the necessary funds.

In connection with Mr. Doherty's report, it was the sense of the board of directors that representatives of the Bureau of Mines and Bureau of Standards be asked to co-operate with this joint committee.

Unusual Demand for Ice Cream Cones Increases Gas Consumption

With their estimated consumption of gas varying between 300 and 500 cu. ft. per hour, three machines for making ice cream cones have been connected with the mains of the Atlanta Company by the Graves-Cromer Manufacturing Company, which goes to indicate that the demand for ice cream cones did not cease when the United States army was mustered out, but instead was maintained very probably by the revenue tax on ice cream bought in any other form than the cone. The Graves-Cromer Company anticipate operating their machines 24 hours a day.

Texas Company Closes Gas Contracts with Three Industrial Consumers

A report received from the Allied Oil Corporation at the Chamber of Commerce of Fort Worth, Texas, says that the company's gas pipe line connecting Fort Worth with the Desdemona, Ranger and Palo Pinto gas fields is to be pushed to completion at an early date. The line will have a capacity of 50,000,000 cu. ft. of gas daily. This company was incorporated under the laws of Delaware with a capital of $10,000,000. Some time ago it merged the gas and fuel production with four other oil and gas companies. The company has at present an output of over 8,000 barrels of oil and 40,000,000 cu. ft. of gas daily. It has closed contracts to supply gas to Armour & Co., Swift & Co., the Fort Worth Power & Light Company and several other large consumers.

Fall River Company's Issue of Employees' Stock Approved

The Gas and Electric Light Commission of Massachusetts has approved an issue of 7,000 additional shares of common stock of $100 par value and 5,000 shares of employees' stock of $10 par of the Fall River Electric Light Company. The proceeds will be applied to payment and cancellation of an equal amount of the company's notes.

Government to Survey Gas Use at McPherson

Bureau of Weights and Standards to Study Atlanta Service—May Lead to Installation at Other Posts

The United States Government at Washington is very much interested in the use of gas at Fort McPherson, the general hospital at the Fort having been one of the biggest gas customers served by any company in the country. According to I. H. Morehead, Jr., chief gas salesman of the Atlanta (Ga.) Gas Light Company, the Bureau of Standards at Washington will conduct a thorough and minute test of some of the apparatus at Fort McPherson, metering each appliance separately.

The bureau's report may have much influence on future installations in army posts all over the country. It is regarded as a foregone conclusion that this report will be favorable to the use of gas, inasmuch as the authorities at Fort McPherson are eminently satisfied with their service and do not hesitate to assert that they have found gas a great deal cheaper than coal.

St. Clair County Company Adds Metalware Company to Its Industrial List

Another gas-using industrial plant soon will be added to the St. Clair County Gas & Electric Company's long list of those already using gas as fuel, with the construction of a plant for the Niedringhaus Metalware Corporation, whose offices are in East St. Louis, Ill. The company was recently incorporated for $1,200,000, the articles being filed for record at Belleville, Ill. They will manufacture and sell goods, wares and novelties made of baked enamelware, and have signified their intention of obtaining gas fuel for their baking ovens. Construction of the plant in East St. Louis will begin immediately.

THE OHIO CITIES GAS COMPANY in a recent report states that it has issued $45,937,500 of common stock and $9,002,100 preferred. It has outstanding $1,875,000 of serial notes and carries in its balance sheet $3,173,000 bonds of subsidiaries. Earnings in the year ended March 31 last figured out at $4.93 a share on the common stock outstanding March 31, but at about $6 on the average amount outstanding during the year.

New Freight Rates Between Illinois and Iowa Under Consideration

The Chicago Western District Freight Traffic Committee of the United States Railroad Administration has under consideration proposed changes in freight rates on carload lots of soft coal (fine) from Group 2 mines, Fulton County, Ill., Bushnell, Canton and Norris, Ill., to Fremont, Cedar and Oskaloosa, Iowa. The Chicago, Burlington & Quincy Railroad is the petitioner, and asks that the same rate be established as now in effect on soft coal other than fine. There has been no movement of soft coal recently. The present rate on soft coal (fine) in carload lots and the proposed rates are: Fremont—present $3.02, proposed $2; Cedar—present $2.04, proposed $2; Oskaloosa—present $2.05, proposed $2. All rates are per ton, 2,000 lb.

Columbia Gas & Electric Has Disbursed $1,000,000 in U. S. Government Tax

President Pomeroy's report of the Columbia Gas & Electric Company directs the attention of the stockholders "to the fact that the company is now without bonded or mortgage indebtedness. As indicated in our last annual report, the sinking fund was sufficiently large on April 1 of this year to provide for the redemption as of July 1 of all outstanding bonds. The company, therefore, called all of its bonds for redemption on that date.

"While the exact amount of taxes due the United States Government has not been definitely determined, it was deemed advisable to reserve $500,000 from the earnings of the first six months of the year against the accrual of taxes for the current year.

"During the first six months of this year the company has disbursed nearly $1,000,000 in cash on account of United States Government tax and $285,000 for the usual dividends on preferred and common stocks. There has also been spent approximately $350,000, principally on the refinery and distributing stations for equipment necessary to maintain the company's position in the refining and marketing of our products. Increased investment in inventories is occasioned by higher prices and much larger crude oil reserves."

Empire Companies of Oklahoma Plan Exhibition of Most Economical Appliances

Preparations for the gas demonstration in the basement of the Almeda Hotel, in Bartlesville, Okla., are rapidly nearing completion. It is the purpose of the gas division of the Empire Companies of Oklahoma to graphically demonstrate the most economical gas appliances, whereby the fuel may be used cheaply and efficiently, a long step toward true conservation.

The new three-part rate will figure prominently in the demonstrations, which will start in a few days and will be directed by H. L. Montgomery, manager of the new-business department. Careful tests will be made to show the gas consumption of each appliance, so that the hourly demand under the three-part plan may be accurately computed.

Eighteen appliances, old and new styles, already have been installed. Several others will be added before the exhibit is opened. The demonstration is intended particularly for men of the new-business department and others concerned with explaining the operation of the three-part rate.

Industrial Consumers Barred from Use of Natural Gas

The Public Service Commission of Indiana has authorized the Interstate Public Service Company to increase its 50 and 40 cent natural gas rate at Greenfield, Ind., to 75 cents a 1,000 cu. ft. of gas and the monthly minimum of 50 cents to 75 cents. The company was directed to maintain a 750-B.t.u. heat standard a cubic foot of gas. Occasionally the company obtains a greater supply of gas from wells by pumping them, and when this is done the gas heat content falls because of air mixed in the gas.

The commission directed the company to discontinue providing gas for industrial consumers and for heating purposes, except for bath water heaters. The order is made in an attempt to conserve for cooking purposes a rapidly disappearing fuel source, the order states.

City Decides to Enter No Protest Against Rate Increase Petition

Agreement was reached at a conference between Mayor Pehr G. Holmes and City Solicitor John W. Mawbey, that no further protest will be made on behalf of the city of Worcester against the increase of 10 cents per 1,000 cu. ft. for the sale of gas by Worcester Gas Light Company.

Mayor Holmes, following the conference, stated that he is satisfied that any action that the city of Worcester might take in the matter would be futile as he is convinced that the Massachusetts Gas & Electric Light commissioners would decide that the increase in rates is necessary in order for the gas company to meet the increase cost for the manufacture of gas.

Court Rules City Has No Power to Act—Referred to State Commission

The complainants in the southeastern part of the city of Madera, Cal., who petitioned the city trustees to abate what they alleged to be a nuisance maintained by the Madera Gas Company will have to seek redress from the State Railroad Commission. This developed at the meeting of the city trustees when City Attorney Fee submitted an appellate court decision in which it was held that in the case of utilities under control of the railroad commission were not subject to regulation by municipalities.

The complaint against the gas company, made to the trustees some weeks ago, was that the smoke and fumes from the works made living there well-nigh impossible and also that the water from the plant had ruined some of the wells in the near neighborhood.

G. W. Kitchen, principal owner of the gas company, was present. He stated that it was impossible to make gas without smoke. The gas company, said Mr. Kitchen, is ready and willing to do everything in its power to stop anything objectionable in connection with its plant. He called attention to the fact that the location of the gas works was made an industrial section by the city in 1903, before any of the homes of the present complainants were built. The complainants, in discussing the matter with Mr. Kitchen, expressed the opinion that he should purchase their property.

After the court decision on the matter was read and it was shown that the trustees could not act, Mr. Kitchen told the complainants that if they wished to take the matter before the railroad commission he would go with them. But, he said, he could not consider buying their property as there would be no end to that. In referring to the fact that the city had set aside the location as an industrial section, Mr. Kitchen said that the earnings from the plant had been very small and that often, as last month, he had been obliged to supply private funds to meet the costs of the plant. If all smoke and fumes were ordered to be abated, he said, the works would have to close down. He wants to keep them going, as he expects to derive some profits after the town has become considerably larger than it now is.

Whether or not the complainants will take the matter before the railroad commission has not been determined.

Natural Gas Shortage in Cleveland Is Sure

Cleveland will be compelled to undergo the discomfiture and suffering of another serious gas shortage this winter, even though the East Ohio Gas Company eliminates the industrial consumers to conserve the supply for the domestic users.

This was the statement made by R. W. Gallagher, assistant general manager of the company, at a public gas meeting held in the city council chamber and attended by one hundred Clevelanders, city official and representatives from Alliance, Ohio, where an alarming situation in the supply of gas exists.

Gallagher said that in severe cold weather there will be a daily shortage even though the supply to many industrial concerns is shut off.

Federal control of the gas supply, elimination of industrial consumers, formation of a league of Ohio cities to combat gas companies and appointment of a commissioner of franchises to negotiate for another ten-year price agreement with the gas company were advocated at the meeting.

Merger of Three Boston Gas Companies Approved

A dispatch from Boston says: "The board of gas and electric light commissioners has approved the issue by the West Boston Gas Company of 1,046 shares of additional capital stock of $100 par value, and of the exchange of these shares for the entire capital stock of the Framingham Gas Fuel & Power Company and of the Natick Gas Light Company for the purpose of effecting the consolidation of the two companies with the West Boston Gas Company.

"The board has also approved an issue by the West Boston company of $130,000 of bonds, part of a total issue of $200,000 dated Oct. 1, 1919, and bearing 6 per cent, secured by a first mortgage on the company's franchise and property."

Use of Natural Gas Restricted

The Public Service Commission, Second District, will enforce its order this winter forbidding the use of natural gas in furnaces capable of burning coal for three months from Dec. 15.

This restriction on the use of natural gas by patrons of the Iroquois Natural Gas Company is of great benefit in preventing a shortage of the supply, and its enforcement will be even more essential in case the available supply diminishes during the winter months. As a result of the order and favorable weather conditions which prevailed, the gas pressure generally was satisfactory last winter.

The commission's order one year ago was short notice to users of gas for heating and it made a few special exceptions in cases brought to the commission's attention where real hardship would follow enforcement of the ruling. The commission believes that ample time now has been given to make necessary preparations for the winter months, and it will feel impelled to enforce the order strictly during the coming winter.

American Gas & Electric Company earnings have fully recovered and the balance available for dividends is now beyond the high mark of 1916. For July this balance was $63,000 greater than for July, 1918, while for the 12 months this balance had increased $587,000.

Wisconsin Gas & Electric Co. Ready to Sell Out to City of Kenosha

The Wisconsin Gas & Electric Company, operating in Kenosha, Wis., is ready to sell its utilities to the city of Kenosha and is willing to accept a deal for the purchase of the street railway alone or for every one of the utilities including even the heating plant. It is declared that the company will go farther and facilitate in every way the transfer of these properties to the city of Kenosha aiding the Wisconsin Railroad Commission in every possible way in making the valuation.

Regardless of the outcome of the election many of the members of the council seem to be in doubt as to the going on with the proposed purchase of the railway lines or any of the other utilities. As the city of Racine has voted to buy the gas plant there it is pretty certain that the action of the Kenosha officials will be held up long enough to see just how Racine tackles that problem. It is expected that a committee of the Racine officials will come to Kenosha in a few days seeking some assurance that Kenosha is going to continue to buy gas from the plant in Racine. It is declared that the Racine officials will not act in the matter unless given some assurance of aid from the other cities.

D. E. Callender Says Company Is Not Inclined to Point Out Any Disadvantages of Municipal Ownership

D. E. Callender, general manager of the Wisconsin Gas & Electric Company, discussing the matter of the city of Racine, Wis., purchasing the company's plant operating in that city and the problem of municipal ownership and management, made the following statement:

"The officials of the Wisconsin Gas & Electric Company are not at all inclined to point out any disadvantages of public ownership of the gas plant by the city of Racine, if there are any such disadvantages, preferring to let that tangle of the coming purchase be discussed by citizens and municipal officials prior to purchase, or acquired by experience after the property has been turned over. It is, however, our intention to insist upon the municipal officials proceeding forthwith with the purchase of the property. As far as the development of the gas plant by the Wisconsin Gas & Electric Company is concerned, this has now been brought to a standstill through the result of the last election when the voters of Racine voted in favor of the city purchasing the company's plant.

"This is the very best time for the Wisconsin Gas & Electric Company to sell its property because of the level of increased prices through causes with which we are all familiar. The value of the property for sale to the municipality will be materially different from the values which we have heretofore been willing to use for rate-making purposes because there is an essential difference between two measures of value in determining value for rate-making purposes. The company has always been content to use lower values because it was selling the use of the property which was measured by the annual return. When it comes to the question of selling the property outright, we are confronted with an entirely different set of facts.

"The generally assumed belief that government ownership of railroads, telegraph and telephone lines has proved unsuccessful during the war is no justification for condemning other ownership by the city or in condemning the municipal ownership of local utilities. The service on the railroads was bad during the war and has not greatly improved since the armistice, but the people who are inclined to criticize the railroad administration are not at all familiar with the problem that has confronted the Government.

"Even if the present city administration were not competent because of lack of business experience, to make the gas plant a commercial success, I feel very sure that the people in Racine are capable of electing an administration which can make a

COAL HEAT

Statements Showing Cost of Heating and Lighting Twelve Stores of The Great Atlantic & Pacific Tea Company

Where Coal Was Used for Heating and Gas for Lighting

Note—Gas used for lighting compiled from gas bills. Coal consumption data supplied by stores. Location of stores and data secured at random without previous knowledge of fuel consumption.

Stores in Brooklyn	Cubic Contents of Stores	No. of Lamps	Amt. of Coal Used (tons)	Gas Consumed for Lighting — Nov.	Dec.	Jan.	Feb.	Mar.	Gas Rate per 1,000	Com. Aver.
363 Fifth Avenue	9.120	4	3	$2.32	$4.72	$5.92	$3.52	$2.80	$0.80	$9.86
200 Fifth Avenue	14.400	4	2	2.08	2.56	3.36	1.04	5.60	0.80	6.93
141 Fifth Avenue	7.920	4	1½	1.68	3.28	3.44	3.60	2.80	0.80	5.96
267 Myrtle Avenue	11.136	4	2	3.44	2.96	3.29	3.44	3.28	0.80	7.28
330 Myrtle Avenue	9.800	4	3	1.92	2.48	2.32	1.84	1.60	0.80	6.03
646 Myrtle Avenue	12.960	4	3	3.36	4.08	3.52	2.72	2.10	0.80	9.16
926 Fulton Street	14.400	4	2	0.88	1.68	1.76	1.92	1.68	0.80	5.58
1083 Fulton Street	11.520	4	1½	1.04	1.92	2.24	2.24	2.40	0.80	4.97
1191 Fulton Street	9.600	4	1½	1.84	2.72	3.60	3.28	2.88	0.80	5.86
2038 Fulton Street	4.560	4	2	1.12	2.16	2.88	2.40	2.24	0.80	6.16
2049 Fulton Street	13.440	4	2½	2.50	3.82	4.20	4.56	4.96	0.80	8.63
222 Fulton Street	8.720	4	2½	6.24	6.24	5.84	6.48	6.08	0.80	11.18
Totals			25½	$28.52	$39.02	$42.37	$37.04	$38.42		

Average cost of using coal for heat and gas for lighting, $3.08 per store per month.
Average cost of coal per month per store, $4.25. Cost of coal, $10 per ton.

success of the gas plant when it is purchased. Oftentimes, people who are able to conceive big ideas absolutely lack the ability to carry them out. The Wisconsin Gas & Electric Company stands ready to proceed with whatever steps are necessary looking towards the turning over of its property to the municipality."

Gas-Electric Merger Contemplated in Maryland and West Virginia

The public service commission of Maryland met at Cumberland, Md., in the City Hall to hear the application of the Potomac Edison Company asking for authority to acquire by purchase the property of the West Virginia & Maryland Natural Gas Company, the Northern Natural Gas Company and the Edison Electric Illuminating Company, of Cumberland. The matter is under advisement by the commission for a period of ten days before decision is made.

It was stated that upon acquisition of the stock of the aforesaid companies application would be made for the approval of the transfer of their franchises to the Potomac Edison Company and for authority to purchase a majority of the capital stock of the Cumberland Electric Railway Company.

Rate on Natural Boosted from 32 to 47 Cents

The maximum price which may be charged for gas by the People's Natural Gas Company in West Seneca, Erie County, N. Y., for one year, or until further order, has been fixed by the New York Public Service Commission, Second District, at 47 cents per 1,000 cu. ft., with a discount of 2 cents a thousand. The commission's order does not apply to State, municipal or Federal contracts.

The commission further directs that all meters be read between Sept. 25 and Oct. 1, the new tariff to be effective within one day after reading. There are about 400 users of gas affected by the order. They have been paying 32 cents a thousand. Commissioner Charles B. Hill, in the order, points out that the company has been operating at a loss since October, 1915.

Comparative Tests of Gas Heating and Coal Heating

The Sanitary Heating Company, of Brooklyn, N. Y., recently made comparative tests in twenty-four stores of the Great Atlantic & Pacific Tea Company, twelve of the stores using gas for heating and twelve of them using coal for heating. The results of the test are shown in the two tables below:

Natural Gas Rates Raised in Maryland Up to 73 Cents 1,000 Cu. Ft.

The Northern Natural Gas Company, which supplies the section of Maryland in the towns of Oakland, Mountain Lake Park, Deer Park, Loch Lynn Heights and other points from the Central West Virginia field, being allied with the same interests as the West Virginia & Maryland Gas Company, which supplies Cumberland and the Georges Creek territory, has announced a new schedule increasing the rate, effective at the time of reading the meters in October and not prior to Oct. 24. The proposed rate operates upward.

For each of the first 5,000 ft. consumed in any one month, 48 cents per 1,000 cu. ft., and an increase of 5 cents on each additional 5,000 cu. ft. until the amount reaches 73 cents per thousand, which latter figure contemplates the consumption of 30,000 cu. ft. per month, when the company, should the new rates which have been filed with the public service commission be approved, may refuse such consumer further supply.

The proposed new rate is regarded as prohibitive for heating purposes, and it is assumed that should it go into effect consumers will use gas for lighting and cooking only.

GAS HEAT

Statement Showing Cost of Heating and Lighting Twelve Stores of The Great Atlantic and Pacific Tea Company

Where "Perfecto" Gas Heaters Were Used for Heating and Welsbach Reflex Gas Lamps Were Used for Lighting

(Compiled from gas bills.)

Note—Location of stores and data secured at random without previous knowledge of fuel consumption.

Stores in Brooklyn	Cubic Contents of Stores	No. of H'ters	No. of Lamps	——Gas Consumed for Heating and Lighting—— Nov.	Dec.	Jan.	Feb.	Mar.	Average per Month	Gas Rate per 1,000
4913 Church Avenue	9.168	1	3	$2.80	$6.08	$9.44	$10.08	$8.32	$7.34	$1.00
765 Flatbush Avenue	10.800	1	4	4.56	8.48	9.84	9.04	6.96	7.78	1.00
1086 Rogers Avenue	6.480	1	4	0.96	2.64	6.32	5.44	3.92	3.86	1.00
440 Rogers Avenue	9.600	1	4	8.64	8.80	8.80	6.08	3.36	7.14	1.00
9024 Fifth Avenue	9.120	1	4	6.15	5.50	6.20	7.22	4.18	5.85	0.90
1654 Bath Avenue	9.216	1	4	2.10	4.55	9.88	9.56	10.20	7.41	0.90
2204 Bath Avenue	11.880	1	4	6.08	7.30	9.80	9.69	8.36	8.25	0.90
639 Sheppard Avenue	10.800	1	4	1.64	2.92	5.52	4.88	3.20	3.63	0.80
205 Hamilton Avenue	9.600	1	4	1.28	2.72	4.56	4.56	4.08	3.44	0.80
152 Seventh Avenue	9.984	1	4	2.88	6.16	10.72	11.76	10.32	8.37	0.80
98 Kingston Avenue	8.400	1	4	1.68	6.21	7.19	7.00	5.92	5.60	0.80
405 Livonia Avenue	11.680	1	4	1.70	2.08	3.60	4.24	2.72	2.87	0.80
Totals				$42.47	$63.44	$91.87	$89.55	$71.54		

Average cost of using gas for both heat and lighting, $5.98 per month per store.
Average cost of gas for heating per month per store, $2.90. Average cost of lighting per month per store, $3.08.
Note—This figure is based on average of consumption in stores where gas is used solely for lighting.

Co-operate with the Plumber

Chicago Company Finds Successful Method to Meet Competition of Coal Against Gas Water Heater

The long-standing feud between the plumber and the gas man which rages about the water-heater problem is handled in a very dexterous fashion by the Peoples Gas Light & Coke Company, of Chicago. Recognizing the fact that the plumber is not able to compete as to prices with the gas water heater as against the coal heater, and is usually full of a certain resentment against the encroachments of more efficient methods on his old ones, the Peoples company tries not to antagonize the plumber. Instead of running counter to him and competing with all the advantages on their side, they substantially take the plumber on as a salesman.

In addition to selling gas heaters to customers direct, the industrial engineers of the company are instructed to make salesmen of the plumbers. Wherever they find a plumber working on a factory to which they are trying to sell heaters, they go straight to that plumber with an offer for co-operation. They get him lined up on the side of the gas company, and nine times out of ten he is glad to assist in bringing pressure to bear for the installation of gas. When the sale is accomplished, the plumber is paid a liberal commission. More than that, in every such case the water heater section of the company is informed who the plumber is, so that he may be protected and regarded as a friend.

This policy is the more important because of the fact that the Peoples company does not do the connecting and installing work of any automatic heater. The goodwill of the plumber is of paramount importance in obtaining a satisfactory installation, therefore. While the water heater section supervises all installations, and is responsible for their proper operation, the actual work is turned over to a master plumber. In cases of industrial installations requiring variations and additional work, an individual estimate is obtained for each case—a tactical point in which it is well to have the plumber well-disposed. Ordinary installations are made for a set price.

The Peoples company, in turning an enemy into a booster and a salesman, is only following the practice long since proven effective by electric companies and other industries having goods to merchandise in a field rife with competition.

War-time Rates Will Continue in Cambridge, Mass.

People Satisfied and Company Is Referred to in Daily Press as Model Public Service Corporation

The gas and electric light commission of Massachusetts has dismissed the request of the city authorities that the Cambridge Gas Light Company be required to reduce its price, which is now $1.10 for 1,000 ft. The commission finds that conditions are still abnormal and unsettled, and do not justify the requirement of a further reduction in price.

Several hearings were held and an examination of the company's books by an expert employed by the city was a feature of the case.

The company has already made one reduction from its war-time high-water price mark, and promises to order further reductions as speedily as conditions will permit.

Every reduction granted by this company in the past (and there have been a great many of them) has been given voluntarily by the company, without so much as a hint from the commission.

The Cambridge Gas Light Company has many champions in the city of Cambridge, Mass. The public has noted these voluntary reductions; the people have read of the profit-sharing system which has been inaugurated among the employees; they are familiar with the business methods employed by the company; they have had experience with the ease with which the officials of the company may be approached and with the pains which are taken to remedy faults and satisfy the customer—they have considered these points, and in the Cambridge press it is admitted that this is a model public service corporation.

For this reason it is reported that the public is satisfied that reductions in the price of gas in Cambridge will be ordered by the company just as fast as the conditions warrant.

Men of All Industries Will Meet in Great Industrial Convention of American Mining Congress

A movement to make the American Mining Congress, which will be held in St. Louis from Nov. 17 to 21, the greatest industrial convention ever held in the United States was launched at a meeting of coal operators and representatives of civic and commercial bodies in the Old Colony Club room at the Planters Hotel, in St. Louis. Preliminary plans for handling the congress, together with the National Exposition of Mines, which will be held at the Old Southern Hotel during the same week, were discussed by representatives of the Chamber of Commerce, Junior Chamber of Commerce, Associated Industries, St. Louis Convention and Publicity Bureau, Advertising Club, Optimists' Club, gas, coal and mineral interests.

John T. Burns, of Washington, D. C., assistant secretary of the congress, who has opened headquarters at the Planters Hotel, outlined the objects of the convention as follows:

"Recovery of industrial balance through resumption of maximum production is the great outstanding need of the nation. Labor unrest, so called, will continue so long as industry and finance remain upon the untenable basis created by the European war. A nation divided against itself cannot endure, and there must be no further delay in finding the causes which make for instability. We must consider a fair, workable and acceptable program upon which the business of the nation can proceed.

"At this conference the American Mining Congress hopes to bring together all conflicting interests and by discussion and deliberation reach a conclusion as to what policies will best serve the nation in this crisis. Mining furnishes the raw materials upon which all industry is based. So long as production of coal, natural gas, oil and metals is upon a minimum level, with maximum costs for labor, supplies and transportation; so long as there exists inflation of national currency; so long as labor radicals continue to demand nationalization of basic industries and the elimination of private capital from control; so long

as labor feels that it is necessary to demand shorter hours in order to prevent idleness, thus decreasing the percentage of production—so long will the complex readjustment problems grow more difficult. Our object, then, is to discuss these problems thoroughly and in a sane way, and find, if possible, the way out for the industries we represent."

Two specially engraved invitations, printed on parchment paper, were mailed to President Wilson and Vice-President Marshall urging their attendance at the congress. More than fifteen thousand invitations in all, to manufacturers, mine operators, mayors, chambers of commerce, boards of trade and men of importance all over the country, have been sent out.

Commission Petitioned for Continuance of 95-Cent Rate in District of Columbia

The Washington (D. C.) Gaslight Company for itself and the Georgetown Gaslight Company has petitioned the Public Utilities Commission to continue, after Sept. 20, the existing rate of 95 cents a 1,000 for gas in the city of Washington, D. C. By order of the commission charges for gas in the District of Columbia were raised in March last from 90 cents to 95 cents for six months between March 20 and Sept. 20. The company wishes the present rate to continue without limitation as to time. A complete statement of its business is made in the petition. It is claimed that the cost of making gas for the seven months ending July 31, was 10 cents a 1,000 ft. more than for the same seven months in 1918. Other costs have been relatively increased.

But for the fact that the sales of gas have increased the company says it would be losing money heavily. As it is the company claims it is just about making the return which the commission has granted it. The return is 5.02 per cent on the finding of true value of the two gas companies. This valuation of the Public Utilities Commission was $10,762,000.

It is not expected there will be any decrease in the cost of labor or of materials.

$30 Available for Dividends for Six Months' Operation of $200,000 Investment

Gas rates are to be increased approximately 15 per cent on bills rendered to Nov. 1 for gas consumed during October, according to a letter sent to the city council of Greeley, Colo., as a matter of courtesy by Paul Darrow, manager of the gas company. The public utilities commission has been notified. It is not presumed that there will be any objection.

Darrow analyzed the company's business before the council advisory gas committee and showed that but $30 were available for dividends for the first six months of this year on an investment of approximately $200,000. Although the council committee had no authority and was asked in an advisory capacity only, the aldermen regarded the new schedule as entirely fair to the consumer. The new schedule attached to Mr. Darrow's letter follows:

For the first 300 ft. used in a single month through a single meter, 75 cents the minimum monthly charge.

Next 2,000, $1.60 per 1,000 less 10 per cent discount.

Next 3,000 ft., $1.50 per 1,000 less 10 per cent.

Next 15,000 ft. $1.40 per 1,000 less 10 per cent.

Next 30,000 ft., $1.30 per 1,000 less 10 per cent.

Next 50,000 ft., $1.20 per 1,000 less 10 per cent.

Over 100,000 ft., $1.10 per 1,000 less 10 per cent.

The discount applies to bills paid on or before 10th of month following use of gas.

The increase on 300 ft. is from 50 cents to 75 cents. Other increases amount to 10 cents per 1,000 ft. in each instance.

New Gas Well Discovered Near Corning, N. Y.

The second test well sunk by the Painted Post Oil, Gas & Mineral Company at Gang Mills, six miles from Corning, N. Y., has developed a strong pressure of natural gas at a depth of 850 ft. The well will be sunk 100 ft. further and capped to await the completion of the third well.

If the latter shows the presence of a considerable field, the company plans to pipe the gas to Corning, N. Y. The first sunk 1,100 ft., and now shows a flow well drilled in the early spring was of 250,000 ft. of gas a day.

George F. Getz to Head New Coal Mining and Distributing Organization

A coal mining and distributing organization which will rival or surpass in magnitude any ever attempted in this country is now in the process of formation in New York. The new concern will have a capitalization of $50,000,000. At the head of the company will be a Chicagoan—George F. Getz, president of the Globe Coal Company and the Eureka Coal & Dock Company.

Mr. Getz has left Chicago to visit New York where the final arrangements for the huge venture are being made. Besides Mr. Getz another Chicagoan whose name has not been announced, will be elected to an official position in the company, serving on the board of directors. The remaining officers and directors will be Eastern men.

It is anticipated that the new company will be chartered under the laws of Delaware and that the incorporation papers will be filed within a week. The financing will be done by a group of New York bankers, headed by J. P. Morgan & Company. The company will be a holding concern, and it is believed that a large proportion of its securities will be issued immediately to enable absorption of going companies.

The company will confine its earliest activities to New York, Boston and Philadelphia, but when once established in those centers will extend to Chicago. Although the main plan embraced is the building up an organization for distribution purposes the plans include coal mining as well.

When asked for details concerning the venture Mr. Getz stated: "We have many plans, but have none of them in working order as yet. We may go out and buy mines that are in operation, or we may decide to buy virgin land and develop our own plants. The same applies to the distributing end of the business. There is the possibility that we may absorb going companies, and the like possibility that we may start new companies."

Ohio Cities, Threatened with Loss of Gas, Forming a League

A start toward the formation of a league of cities for the preservation of natural gas at a lower rate than that which is being sought by the East Ohio Gas Company was made in Cleveland recently at a meeting at which council committees and representative citizens of Cleveland and Alliance, Ohio, met and talked over the gas situation.

At its next meeting the Cleveland City Council plans definite action in regard to this organization of a league of cities.

It is reported that full advantage will be taken of the Miller law to check arbitrary action, such as stopping the natural gas flow to any city or group of cities.

It is expected that unity of understanding and action can be attained through a league of cities—an organization of municipalities banded together for the common purpose of preserving the benefits of natural gas to more than a million users in Ohio at prices less than the company is petitioning.

It is reported that every city now using natural gas will be included in the league, and particularly those now threatened with loss of supply and those who have contracts that are about to expire.

St. Louis Awaiting Report on Street Lighting

Solution of the street lighting problem in St. Louis has been postponed until the second of two reports, made by Ralph Toensfeldt, of the Department of Public Utilities, who was sent to Chicago and Milwaukee to study the lighting systems there, has been studied thoroughly by the Board of Public Utilities. The first report dealt with specific recommendations for immediate changes in the system, while the second deals with a general plan for future consolidation of the lighting system of the city either as a wholly electrically lighted system or a wholly gas-lighted system, after the present lighting contract expires, Aug. 31, 1920.

The second report stated that Mr. Toensfeldt had found that Chicago is placing its lights on 11-ft. poles, and as a consequence only a bright glare of small radius is reflected on the pavement. The theory seems to be of discernment by contrast—making visible objects on the street by giving them relief against a brightly lighted space. He declares that this does not make it possible for pedestrians to see clearly the features of those they meet.

In Milwaukee he found, according to the report, that lights were being put as high in the air as possible on poles from 15 to 30 ft. high, the theory being one of lighting by diffusion, giving a glow to the entire area instead of isolated bright splotches as in Chicago. He declares that this system makes it possible to see features of passers-by 15 or 20 feet away.

Progress Is Reported at Chicago Company's Hearing

Rapid progress has been made during the past week by opposing counsel at the conferences in connection with the case in which the Peoples Gas Light & Coke Company of Chicago is seeking to have the valuation of its properties determined before the Illinois Public Utilities Commission.

The attorneys for the gas company and counsel for the city of Chicago have been going over the fifty-seven volumes of inventory prepared by five leading firms of engineers to determine what part of this inventory shall be submitted for consideration of the Public Utilities Commission when the main hearing is resumed before that body on October 21.

Up to the present time about four-fifths of the inventory has been gone over. Counsel for the city has been very fair in the matter of accepting portions of the inventory, and while all of the vast report has not been agreed upon, a big part of it has been accepted.

It is the object of the gas company to obtain from the Public Utilities Commission a rate for gas based upon capital invested. The rate would permit of a fair return to the stockholders. The hearings before the commission are expected to cover a period of several weeks, and developments will be closely watched by the gas industry generally.

It is expected that the conference of attorneys will be concluded about Oct. 18. The conferences, which are held daily, are attended by experts representing the commission, but the commission is not bound by decisions and agreements entered into by attorneys for the company and attorneys for the city.

The gas company is represented by the law firm of Cooke, Sullivan and Ricks.

West Virginia Natural Gas Company Starts Repair Work

The West Virginia Natural Gas Company is making preparations to tear up one of its pipe lines in Wheeling, W. Va. Following the tearing up of the line, the ditch in which the line will be relaid will be made much deeper in places. This is the first big start of any corporation to comply with that part of the Wheeling, W. Va., city ordinance which states that within twenty days after receiving notice that a street is to be paved improvements and repairs must be made.

Notices were sent out several days ago from the office of the city manager notifying owners of property abutting on the streets to be paved that they must make all repairs before a certain date. If repairs are not completed by that time the parties not having them complete are liable to prosecution. Each day after that date will be considered a separate and distinct violation.

Laclede Company Wrecking Its Munition Buildings

Contracts have been let for the wrecking of the munition factories of the Laclede Gas Light Company, which were under construction at South Broadway and River Des Peres, when the signing of the armistice stopped the work. More than $5,000,000 had been spent on the buildings for machinery and other equipment. The salvage from these buildings will be sold to the highest bidder in accordance with the War Department regulations for the disposition of salvage.

A Municipal Company Raises Its Gas Rates

Another increase in rates for gas, the second since Jan. 1, was announced by the municipal light commissioners of Wakefield, Mass. The new gas rate is to be $1.60 net to users of less than 30,000 cu. ft. per month, or the average householder. It is an increase of 10 cents per 1,000 cu. ft. To large consumers the increase amounts to about 5 cents.

Increased wages recently granted municipal employees and the continued high cost of material are given as the cause of the increases.